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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

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An Act Relating to the Board of Health (Chapter 214, Laws 1893). Amend- ments by the last General Assembly.

We have just obtained certified copies of the acts amendatory to our health law passed by the Legislature which adjourned last month. One was a general and the other a special act. They were respectively as follows:

AN ACT TO AMEND CHAPTER 214, LAWS 1893.

The General Assembly of North Carolina do enact:

SECTION 1. That section 5 of chapter 214, laws of 1893, be amended as follows: Strike out all after the word "county," as it first appears in line 3 of said section, down to the word "from" in line six of said section. That said section shall be further amended by striking out the word "ballot" in line six of said section, and inserting between the words "by" and "to" in line six of said section the following: "The board of commissioners of each county annually,

on the first Monday in May of each year." That the said section shall be further amended by striking out the words "two years" in line seven of said section. And the said section shall be further amended by inserting after the word "health" and before the word "his" in line seven of said section the following: And the said board of commissioners shall fix the compensation of said county superintendent of health.

SEC. 2. That section 5 of chapter 214, laws of 1893, be further amended by striking out all of said section after the word "commissioner" in line 20 down to the word "provided" in line 24.

SEC. 3. That section 7 of said chapter 214, laws of 1893, be and the same is hereby repealed.

SEC. 4. That all laws and clauses of laws in conflict with this act are hereby repealed.

SEC. 5. That this act shall be in force from and after its ratification.

Ratified the 2d day of March, A. D. 1897.

**An Act to Amend Sec. 5, Chapter 214,
Public Laws of 1893, Prescribing
the Salary of Supt. Board of
Health.**

The General Assembly of North Carolina do enact:

SECTION 1. That the superintendent of health provided for in section five (5), chapter two hundred and fourteen (214) of the public laws of 1893, shall hereafter be elected by the board of county commissioners.

SEC. 2. That the salary of the county superintendent of health shall be fixed by the board of county commissioners, to be not less than one hundred dollars nor more than four hundred dollars: *Provided*, that the salary shall not be reduced during the term for which such officer may have been elected.

SEC. 3. That all laws and clauses of laws in conflict with this act are hereby repealed.

SEC. 4. That this act shall apply to the counties of Warren, Wake, Yadkin, Chatham and Halifax.

SEC. 5. That this act shall be in force from and after its ratification.

Ratified the 9th day of March, A. D. 1897.

Section five, as amended, now reads thus:

"SEC. 5. There shall be an auxiliary Board of Health in each county in the State. These boards shall be composed of all registered physicians resident in the county. From this number one physician shall be chosen by the Board of Commissioners of each county annually on the first Monday in May of each year, to serve with the title of Superintendent of Health. And the said Board of Commissioners shall fix the compensation of said County Superintendent of Health. His duty

shall be to gather vital statistics upon a plan designated by the State Board of Health. He shall always promptly advise the Secretary of the State Board of the unusual prevalence of disease in his county, especially of typhoid fever, scarlet fever, diphtheria, yellow fever, small-pox, or cholera. His report shall be made regularly, as advised by the State Board, through their Secretary; and he shall receive and carry out as far as possible such work as may be directed by the State Board of Health. He shall make the medico-legal post-mortem examinations for coroners' inquests, and attend the prisoners in jail, home for the aged and infirm, and house of correction, and make an examination of lunatics for commitment. He shall be the sanitary inspector of the jail and home of his county, making monthly reports to the board of county commissioners: *Provided, further*, that it shall be unlawful for said county commissioners to elect any one not eligible to membership in the county board to the office of county superintendent of health, if any such qualified physician can be found in the county willing to accept the office."

Section seven, which was repealed, related to the salary or remuneration by the usual fees of the superintendent, he having the privilege of demanding payment "in accordance with the medical fees usual in his county" if the definite salary offered him by the board of county commissioners in lieu of fees was not satisfactory.

We are very sorry that these changes have been made, particularly because it does seem ungracious, when sanitary work is promoted almost entirely by medical men, and that, too, in opposition to their own pecuniary interests, to deprive them of a voice in the selection

of their county health officer; and because we fear that the interest in sanitation on the part of the profession, already discouragingly feeble, will be still further weakened. Of course it will have no appreciable effect on those who are sincerely interested in the welfare of their fellow beings, but unfortunately there is a great deal of "human nature" in man, even though he be a member of the noble profession of medicine.

At the same time, as is nearly always the case, there are two sides to this question, and we always felt that if the matter were ever brought to the attention of a legislature constituted as we have known them for the past fifteen or twenty years these changes would be made. Under the act of 1893, while they had to pay the salary of the superintendent of health, the county commissioners had no control over his selection, and practically none over his pay. Since we suppose it would be safe to say that there is a great deal of "human nature" in county commissioners, as well as in physicians, we are constrained to admit that it was not unnatural for the men who had to pay for the service to desire the right to say who should render the service and what the amount of his compensation should be. But, after all has been said, we are afraid, looking at the matter from the points of view of the poor and the prisoners, that a mistake has been made. Most of our county commissioners are, we are sure, kind-hearted, humane men, but even kindly men are not always as observant and thoughtful as they might be, and, from what has sometimes happened heretofore, there is ground to fear that in the interest of a false economy the health of the people as a whole, and particularly

of the unfortunate inmates of our county homes and jails, will be allowed to suffer.

On more than one occasion, even under the old law, a disposition has been shown to let the office to the lowest bidder, and everybody knows what that would mean. But it cannot be helped now, and could not at the time: so there is nothing for us to do but to hope for the best.

Summary of Reports from County Superintendents of Health for March, 1897.
(Eighty-two counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports, and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. A few cases of measles, whooping cough and typhoid fever.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. No diseases to report.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Pneumonia to some extent in the centre. Influenza has subsided. Great improvement in the health of the county.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. No diseases to report.

BEAUFORT—Dr. Joshua Tayloe, Washington. Two cases of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Bronchial diseases in all parts. An epidemic of distemper in horses.

BLADEN—Dr. Newton Robinson, Elizabethtown. Several cases of whooping cough. Very little sickness.

BRUNSWICK—Dr. D. I. Watson, Southport. No diseases to report.

BUNCOMBE—Dr. E. C. Starnes, Asheville. No diseases to report.

BURKE—Dr. J. L. Laxton, Morganton. Eight cases of whooping cough, two of pneumonia and colds in all parts. More room is needed at the county home.

CABARRUS—Dr. Robt. S. Young, Concord. Sixty two cases of whooping cough and two of diphtheria. Pneumonia and mild malarial attacks in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Twenty-five cases of whooping cough.

CAMDEN—No Board of Health.

CARTERET—Dr. Geo. N. Ennett, Beaufort. Grip in all parts.

CASWELL—Dr. W. O. Spencer, Yanceyville. Catarrhal fever and pneumonia in all parts. My efforts at improvement have been so far without effect.

CATAWBA—Dr. D. McD. Yount, Newton. Whooping cough to some extent in all parts.

CHATHAM—Dr. J. B. Matthews, Pittsboro. A few cases of whooping cough and one of typhoid fever. The jail is badly in need of sewerage.

CHEROKEE—Dr. J. F. Abernathy, Murphy. No diseases to report except roup among fowls. The sewer from the jail becoming blocked up and in bad condition, work has been begun to amend it.

CHOWAN—Dr. R. H. Winborne, Rockyhook. Catarrhal troubles, with bronchitis and r  theln in some part, but more healthy than usual for March.

CLAY—Dr. W. E. Sanderson, Hayesville. One case of typhoid fever and one death from acute rheumatism. General health never better.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. No diseases to report.

Craven—Dr. J. W. Duguid, Newbern. Malarial and catarrhal fevers in all parts. Hog cholera in the West. The public building is now finished, and is a handsome ornament to Newbern and a convenience long needed.

CUMBERLAND—Dr. J. Vance McGowan, Fayetteville. Five cases of measles. La grippe in all parts.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No diseases to report.

DAVIDSON—Dr. John Thames, Lexington. One case of diphtheria.

DAVIE—Dr. James McGuires, Mocksville. La grippe and colds in all parts.

DUPLIN—Dr. J. C. Grady, Magnolia. No report.

DURHAM—Dr. John M. Manning, Durham. One case of whooping cough. Very healthy.

EDGECOMBE—Dr. L. L. Staton, Tarboro. One case of scarlatina. Very healthy.

FORSYTH—Dr. E. F. Strickland, Bethania. Measles in Rural Hall township. Influenza and pneumonia in many parts. The sanitary condition of the jail will be improved when the contemplated repairs are made to the sewer pipes.

FRANKLIN—Dr. E. S. Foster, Louisburg. No diseases of importance.

GASTON—Dr. J. H. Jenkins, Dallas. Mumps and pneumonia. A few cases of grippe.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Twelve cases of measles and one of typhoid fever.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Seven cases of measles and one of typhoid fever. Intermittent fever and influenza in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Bronchial and catarrhal troubles in all parts.

HALIFAX—Dr. I. E. Green, Weldon. Very little sickness. Some cases of German measles in one section.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Four cases of typhoid fever. Very little sickness.

HENDERSON—Dr. H. L. Ashworth, Hendersonville. Two cases of typhoid fever. La grippe. The grounds around the jail have been improved.

HERTFORD—Dr. John W. Tayloe, Union. Very little sickness.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Two cases of typhoid fever. Mumps, grippe and malarial fever.

JACKSON—Dr. Wm. Self, Webster. One case of mumps. Grippe and pneumonia in all parts. The construction of the jail renders it unsanitary when crowded. The ventilation is poor and there is need of a good water supply. The jailer does all in his power to keep it clean. Some improvement is being attempted.

JOHNSTON—Dr. R. J. Noble, Selma. One case of hemorrhagic malarial fever. Very little sickness.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. No report.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Three cases of whooping cough. If the lowlands along Clark's creek were drained, the sanitary condition of that community would be much improved.

MCDOWELL—Dr. George I. White, Marion. A few cases of grippe and measles. Very little sickness.

MACON—Dr. S. H. Lyle, Franklin. Three cases of typhoid fever. An epidemic of influenza of unusual severity is just disappearing.

MADISON—Dr. Jas. K. Hardwicke, Marshall. No serious disease to report.

MARTIN—Dr. W. H. Harrell, Williamston. Pneumonia and bronchitis in all parts.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. No report.

MITCHELL—Dr. C. E. Smith, Bakersville. Fifty cases of whooping cough and a few of la grippe. Otherwise, very little sickness. The sanitary condition of the jail is bad. The legisla-

ture at its late session passed a bill allowing the commissioners to levy a special tax for the purpose of building a new one.

MONTGOMERY—Dr. W. A. Simmons, Troy. Two cases of typhoid fever. The gripe has almost disappeared.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Very little sickness.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Sixty cases of whooping cough and four of typhoid fever. Malarial diseases.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. La gripe, measles and whooping cough.

ONSLow—Dr. E. L. Cox, Jacksonville. A few cases of ordinary and of hemorrhagic malarial fever. Not much sickness.

ORANGE—Dr. D. C. Parris, Hillsboro. Some measles and whooping cough. Catarrhal diseases in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. La gripe in several parts. The county home needs enlarging, and the prospect for enlarging it seems good.

PENDER—Dr. Geo. F. Lucas, Currie. No diseases to report.

PERQUIMANS—Dr. C. C. Winslow, Winfall. Two cases of whooping cough, one of diphtheria, one of typhoid fever and nine of pneumonia.

PERSON—Dr. J. A. Wise, Roxboro. Measles and whooping cough. Improvements in the jail and court house deserve special mention.

PITT—Dr. Frank W. Brown, Greenville. Colds and influenza.

POLK—Dr. C. J. Kenworthy, Tryon. Health of county excellent.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Very little sickness. The epidemic of la gripe has now subsided. There have been some improvements at the county home and jail.

RICHMOND—Dr. W. H. Steele, Rockingham. Several cases of diphtheria and one of typhoid fever.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported.

ROCKINGHAM—Dr. Samuel Ellington, Wentworth. La gripe in all parts. The sanitary condition of the jail is not good owing to the construction of the building.

ROWAN—Dr. John Whitehead, Salisbury. Five cases of typhoid fever. Pneumonia and malarial fever.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Two cases of scarlatina.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of whooping cough, measles, influenza and pneumonia. Two cases of typhoid fever in the same family.

STANLY—Dr. D. P. Whitley, Millington. A few cases of whooping cough and one of typhoid fever. I have suggested to the commissioners the necessity of rebuilding at the county home, but the county is heavily in debt, and as yet nothing has been done.

STOKES—Dr. W. L. McCanless, Danbury. Five cases of measles. Influenza in all parts.

SURRY—Dr. John R. Woltz, Dobson. La gripe and colds. The jail and home are being scoured and white-washed.

SWAIN—Dr. A. M. Bennett, Bryson City. No diseases to report.

TRANSYLVANIA—Dr. M. M. King, Brevard. La grippe in all parts.

TYRRELL—No Board of Health.

UNION—Dr. J. E. Ashcraft, Monroe. La grippe and catarrhal troubles in town and country.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of whooping cough; bad colds, bronchitis, influenza and many cases of pneumonia throughout the county.

WAKE—Dr. P. E. Hines, Raleigh. Five cases of measles, twenty-four of whooping cough, and one of scarlatina. Bronchitis, influenza and pneumonia in all parts heard from. Some cholera among fowls. Dr. Utley reports a good many cases of measles and whooping cough about Holly Springs not attended by any physician. All the buildings at the county home are in good order. Two of those at the workhouse need shingling. Only four replies received from thirty blanks sent out.

WARREN—Dr. Geo. A. Foote, Warrenton. Many cases of measles and one of diphtheria: slight bronchitis and grippe.

WASHINGTON—Dr. W. H. Ward, of Plymouth. Very little sickness.

WATAUGA—Dr. W. B. Conncill, Boone. Forty cases of measles and seven of typhoid fever in western part of county.

WAYNE—Dr. W. J. Jones, Goldsboro. Ten cases of measles. Catarrhal inflammations.

WILKES—Dr. J. M. Turner, Wilkesboro. Not much sickness. The sanitary condition of the jail is somewhat improved.

WILSON—Dr. N. Anderson, Wilson. Measles epidemic.

YADKIN—Dr. T. R. Harding, Yadkinville. No sickness of note.

YANCEY—Dr. J. R. Ray, Burnsville. Health of county good. A little pneumonia.

Review of Diseases for March, 1897.

BRONCHITIS—From Bertie, Chowan, Guilford, Martin, Vance, Wake and Warren—7 counties.

CHOLERA IN FOWLS—From Wake.

CHOLERA IN HOGS—From Craven.

DIPHTHERIA—From Cabarrus, Davidson, Perquimans and Warren.

DISTEMPER IN HORSES—From Beaufort.

INFLUENZA—From Alleghany, Carteret, Cumberland, Davie, Forsyth, Gaston, Greene, Henderson, Iredell, Jackson, McDowell, Macon, Mitchell, Montgomery, Northampton, Pasquotank, Pitt, Randolph, Rockingham, Sampson, Stokes, Surry, Transylvania, Union, Vance, Wake and Warren—27 counties.

MALARIAL FEVER—From Cabarrus, Craven, Greene, Iredell, Johnston, New Hanover, Onslow and Rowan—8 counties.

MALARIAL FEVER, HEMORRHAGIC—From Johnston and Onslow.

MEASLES—From Alamance, Cumberland, Forsyth, Granville, Greene, Northampton, Orange, Sampson, Stokes, Wake, Warren, Watauga, Wayne and Wilson—14 counties.

MUMPS—From Gaston, Iredell, Jackson and McDowell.

PNEUMONIA—From Alleghany, Burke, Cabarrus, Caswell, Forsyth, Gaston,

Jackson, Martin, Perquimans, Rowan, Sampson, Vance, Wake and Yancey—14 counties.

RHEUMATISM—From Clay.

ROUP IN FOWLS—From Cherokee.

RÖTHELN—From Chowan and Halifax.

SCARLATINA — From Edgecombe, Rutherford and Wake.

TYPHOID FEVER—From Alamance, Beaufort, Chatham, Clay, Granville, Greene, Haywood, Henderson, Iredell, Macon, Montgomery, New Hanover, Perquimans, Richmond, Rowan, Sampson, Stanly and Watauga—18 counties.

WHOOPING COUGH—From Alamance, Bladen, Burke, Cabarrus, Caldwell, Catawba, Chatham, Durham, Lincoln, Mitchell, New Hanover, Northampton, Orange, Perquimans,

Pérsón, Sampson, Stanly, Vance and Wake—19 counties.

Summary of Mortuary Reports for March, 1897. (Twenty-four towns.)

The towns whose reports are not vouched for, printed in small type, are not included.

	White.	Col'd.	Total.
Aggregate population.....	73,172	55,213	128,385
Aggregate deaths.....	51	100	151
Representing annual death rate per 1000.....	8.4	21.7	14.1
<i>Causes of Death.</i>			
Typhoid Fever.....	1	0	1
Malarial fever.....	1	0	1
Whooping cough.....	0	1	1
Measles.....	1	1	2
Pneumonia	4	12	16
Consumption	12	25	37
Brain diseases	6	4	10
Heart diseases.....	3	6	9
Neurotic diseases.....	1	2	3
Diarrhoeal diseases.....	1	1	2
All other diseases.....	21	47	68
Accident	0	1	1
	5	100	151
Deaths under 5 years.....	8	30	38
Still-born.....	1	6	7

Condition of Jails and County Homes by Counties for March, 1897.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		33 (a)					27			
Alexander.....	good	2				good	4			1
Alleghany.....		7					7			
Anson.....										
Ashe.....						fair	10	600		
Beaufort.....	good	7				good	12			
Bertie.....	very good	14 (b)				very good	12			
Bladen.....	good	1				good	4			
Brunswick.....	no change	2	*			no change	13	900		
Buncombe.....	very good	110 (c)	436			very good	40	735		
Burke.....	no change	11					16			
Cabarrus.....	good	46 (d)	*	2	16	good	26	922	7	12
Caldwell.....		6	*	0	4		5	*	0	3
Camden.....										
Carteret.....	good	1					0			
Caswell.....	+ only fair	3				only fair	32			
Catawba.....	no change	7	727	4	4	no change	35	927		
Chatham.....	+	7			3	good	23			2
Cherokee.....	+	6	*		1		4	*		
Chowan.....	fair	4	*	0	0	fair	5	*	2	0
Clay.....										
Cleveland.....	good	20	1,000		12	good	14	900		3
Columbus.....	good	9	*		5	good	6	*		1
Craven.....										
Cumberland.....		23					18			
Currituck.....										
Dare.....		1								
Davidson.....	good	2				good	27			
Davie.....	no change	9		0	5	no change	7		0	0
Duplin.....										
Durham.....	first rate	41 (e)	*			first rate	20	*		
Edgecombe.....		13					23			
Forsyth.....	+	13	1,000	3	5	very good	24	*	7	6

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 27 in House of Correction. (b) Includes 8 in House of Correction. (c) Includes 65 in House of Correction. (d) Includes 34 in House of Correction. (e) Includes 28 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	6	*			no change	20	*		
Gaston	good					good				
Gates										
Graham										
Granville	good	1				good	33			
Greene	good	1	600	1	1	good	9	1,000	5	4
Guilford	good	104 (a)				good	43			
Halifax		37		14	18		47		15	13
Harnett										
Haywood	good	4				good	7			
Henderson		9	*				3	*		
Hertford	no change	2	*	0	0	no change	10	*	1	2
Hyde										
Iredell	no change	41 (b)	500			no change	25	500		
Jackson		5	*	0	4			506	0	1
Johnston		4	*				10	*		
Jones										
Lenoir										
Lincoln	good	6	*	0	3	good	22	600	6	12
McDowell										
Macon	good	3	*	1	1	good	9	750	6	4
Madison		13	300	0	2		20	100	4	1
Martin	not good	1	*	0	0	not good	13	*	4	0
Mecklenburg										
Mitchell		18				fair	6			
Montgomery	excellent	4	500			excellent	17	500		
Moore										
Nash	good	6	600	4	6	good	29	1,000	10	8
New Hanover	crowded	59 (c)		12	45			*	20	8
Northampton	good	5	1,000	0	3	good	30	900	10	8
Onslow		3					6			
Orange	not good	5	500	2	5	good	24	1,000	17	6
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 79 in House of Correction. (b) Includes 34 in House of Correction. (c) Includes 13 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		4	*				30	*		
Pender.....		0				good	3		0	0
Perquimans.....						very good	6			
Person.....	good +	5		1	1	good	13		11	2
Pitt.....		14	*		5		30	*		2
Polk.....	good	3	*	1	2		0			
Randolph.....		10			9		36			6
Richmond.....		10	*	0	8		26	1,000	0	5
Robeson.....	good	8 (a)				good	14			
Rockingham.....		7	*			good	34	750		
Rowan.....		7	500	4	3		18	500	9	3
Rutherford.....		4					15			
Sampson.....	good	5				good	24			
Stanly.....	good	2	*	0	1		8	*	0	1
Stokes.....	good	7	600	2	1	good	12	600	4	3
Surry.....		9 (b)	370		2		22	*		4
Swain.....	good	8	400			good	4	700		
Transylvania.....	good	2	*	0	1	good	4	*	0	
Tyrrell.....										
Union.....	good	6				good	39			
Vance.....	good	4	*	0	1	fair	17	*	2	2
Wake.....		65 (c)				good				
Warren.....	good	2				good	20			
Washington.....	good	7	820	0	4	good	5	720	1	1
Watauga.....	very good	5				very good	9			
Wayne.....	good	10				good	14			
Wilkes.....		1				no change	14			
Wilson.....	very good	4				very good	23			
Yadkin.....	good	2		0	0	poor	27		0	5
Yancey.....	fair	2	*	0	2	fair	3			

* Space exceeds 1,000 cubic feet. + See Summary of Reports of County Superintendents of Health. (a) Includes 4 in House of Correction. (b) Includes 2 in House of Correction. (c) Includes 58 in House of Correction.

Mortuary Report for March, 1897.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.												TOTAL DEATHS.						
		By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	By Races.	By Towns.
Asheville.	White.	8,000	12,000	10.5	7.0							1	4				1	1			7	7
Dr. E. C. Starnes.	Colored.	4,000		0.0																	0	
CHARLOTTE	White.	10,855	19,651	5.5	11.6								1	1				1	2		5	19
C. A. Spratt, H. O'Neil	Colored.	8,796		19.1								2	6				6				14	3
Durham	White.	4,000	6,000	18.0	12.0				1			1		3				1			6	6
Dr. J. M. Manning.	Colored.	2,000		0.0																	0	1
FAYETTEVILLE	White.	3,500	6,000	10.3	18.0								1				1				3	9
Dr. J. V. McGougan.	Colored.	2,500		28.8								2	2				1		1		6	1
GOLDSBORO	White.	3,600	5,600	6.7	10.7									1				1			2	5
T. H. Bain, Sec. B. H.	Colored.	2,000		19.0										1				2			3	2
GREENSBORO	White.	5,500	8,000	4.4	13.5							2		1					4		12	9
J. S. Michaux, City Clk	Colored.	2,500		33.6								2									7	
HENDERSON	White.	2,250	4,250	10.6	5.6							1		1							2	
Dr. W. J. Judd.	Colored.	2,000		0.0																	0	2
HILLSBORO	White.	400	700	60.0	68.6													2			2	4
Dr. D. C. Parris.	Colored.	300		80.0									1				1				2	
LENOIR	White.	800	1,100	0.0	10.9									1							0	1
Dr. A. A. Kent.	Colored.	300		40.0																	1	
MARION	White.	750	1,000	13.3	12.0													1			1	
Dr. G. I. White.	Colored.	250		0.0																	0	1
MONROE	White.	1,800	2,400	6.7	10.0							1									1	2
Dr. J. M. Blair.	Colored.	600		20.0																	1	
OXFORD	White.	1,500	2,500	16.0	28.0									1				1			2	
Dr. T. L. Booth.	Colored.	1,000		48.0								1	2								4	6
RALEIGH	White.	7,200	13,200	8.3	14.5								2	2				3			5	1
T. P. Sale, Clerk B. H.	Colored.	6,000		22.0									2	3				1	5		11	16
ROCKINGHAM	White.	1,300	1,750	9.2	6.8													1			1	
Dr. W. H. Steele.	Colored.	450		0.0																	0	1
ROCKY MOUNT	White.	1,600	2,600	0.0	0.0																0	
Dr. G. L. Wimberley.	Colored.	1,000		0.0																	0	
SALEM	White.	3,942	4,284	0.0	2.8																0	1
S. C. Butler, H. O'Neil.	Colored.	342		35.1														1			1	
SALISBURY	White.	4,000	5,500	14.0	15.3	1						1		1				1			4	
Dr. John Whitehead.	Colored.	1,500		24.0														2			3	7
SCOTLAND NECK	White.	775	1,200	15.5	10.0									1							1	
Mayor J. A. Perry.	Colored.	425		0.0																	0	1
SOUTHPORT	White.	800	1,200	0.0	10.0																0	
E. B. Stevens, City Clk.	Colored.	400		30.0														1			1	1
Statesville	White.	2,500	3,500	0.0	0.0																0	
Dr. W. J. Hill.	Colored.	1,000		0.0																	0	
TARBORO	White.	1,200	2,500	0.0	9.6																0	
Dr. L. L. Staton.	Colored.	1,300		18.5														2			2	2
WARRENTON	White.	1,030	1,500	0.0	0.0																0	
Dr. Geo. A. Foote.	Colored.	500		0.0																	0	
WASHINGTON	White.	3,000	5,500	20.0	24.0								3	1				1			5	
Dr. Joshua Tayloe.	Colored.	2,500		28.0								1						4			6	11
WELDON	White.	700	1,450	0.0	16.5																0	
Mayor J. T. Gooch.	Colored.	750		32.0														1	1		2	2
WILMINGTON	White.	9,000	22,000	10.7	14.7							1	1	2				4			8	2
Dr. J. C. Shepard.	Colored.	13,000		18.5					1			1	4	2	1			11			20	27
WILSON	White.	2,500	4,500	14.4	13.3			1		1											3	3
Dr. N. Anderson.	Colored.	2,000		12.0														2			2	5
WINSTON	White.	5,200	10,000	9.2	21.6								1					3			4	18
Dr. John Bynum.	Colored.	4,800		35.0								1	5	2	2			4			14	4

N. B. The reporters for the cities and towns printed in large type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MARCH, 1897.
Furnished by the North Carolina Section of the Climate and Crop Service.
C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE. (DEGREES FAHR.)									NO. OF DAYS.					
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.	Rainy.	Prevailing Wind.
Asheville.....	50.1	77	21	60.2	20	28	40.0	57	20.2	6.03	14	12	5	14	S
Beaufort.....	55.4	77	21	64.5	35	1	46.3	42	18.2	3.60	8	3	20	9	SW
Charlotte.....	52.2	80	21	60.4	28	28	44.1	52	16.3	6.21	8	7	16	19	SW
Chapel Hill.....	51.0	81	21	61.5	28	26	40.6	53	20.9	4.52	9	8	4	15	SW
Highlands.....	45.5	66	21	54.5	15	28	33.5	51	18.9	7.35	4	10	17	15	W
Henderson.....	51.0	80	20	61.2	29	27	40.8	51	20.4	5.83	8	10	13	14	S
Littleton.....	49.0	75	21	59.8	27	28	38.2	48	21.6	4.54	6	4	20	10	SW
Louisburg.....	52.8	80	21	62.7	27	1	42.8	53	19.9	4.49	.....	.....	.....	10	.....
Lenoir.....	50.3	74	20	56.6	27	1	42.9	47	13.7	5.97	9	7	15	8	NW
Monroe.....	53.0	78	20	62.2	25	28	43.9	53	18.3	6.08	7	5	19	12	NE
Morganton.....	47.0	72	21	57.7	22	1	42.4	50	15.3	6.29	.....	.....	.....	7	.....
Mt. Airy.....	49.2	76	20	58.7	24	29	39.7	52	19.0	5.12	2	18	11	12	SW
Mocksville.....	53.0	79	20	63.1	29	28	42.8	50	20.3	6.46	3	16	12	20	NE
Newbern.....	57.4	79	20	64.7	36	28	50.0	43	14.7	3.85	10	7	14	10	.....
Oak Ridge.....	49.8	76	21	59.8	25	28	39.7	51	20.1	5.21	14	7	10	14	NW
Pittsboro.....	50.8	78	21	59.8	26	26	41.9	51	17.9	5.82	9	5	17	15	SW
Raleigh.....	53.0	80	21	61.8	31	1	44.1	49	17.7	4.82	5	12	14	13	SW
Roxboro.....	48.8	77	20	60.0	25	27	37.7	52	22.3	5.57	8	9	14	11	.....
Rockingham.....	55.0	81	20	64.6	30	26	45.3	51	19.3	4.81	10	11	10	10	SW
Southport.....	56.6	78	21	65.0	31	28	48.1	47	16.9	2.65	6	8	17	11	SW
Salisbury.....	52.6	78	20	61.6	29	30	43.5	49	18.1	5.78	.....	.....	.....	10	.....
Selma.....	53.8	82	21	63.3	29	1	44.3	53	19.0	8.27	.....	.....	.....	15	.....
Saxon.....	51.1	80	20	62.7	23	28	39.5	57	23.2	4.84	6	13	12	14	SW
Tarboro.....	52.2	85	21	64.1	25	1	40.2	60	23.9	4.72	8	6	16	17	S
Weidon.....	51.4	79	20	61.1	26	1	41.8	53	19.3	4.58	8	7	16	16	S
Wilmington.....	56.8	82	21	65.3	34	28	48.3	48	17.0	1.23	11	9	11	13	W

State Meteorological Summary for March, 1897.

Mean barometer 30.12 inches; normal for March 30.06. Highest barometer 30.69 on the 1st at Kittyhawk. Lowest barometer 29.42 on the 24th at Kittyhawk. Mean temperature 51.9 degrees; normal for March 48.1. Highest temperature 86 on the 21st at Tarboro and Southern Pines. Lowest temperature 15 on the 28th at Highlands. Average rainfall 5.56 inches; normal for March 4.54 inches. Greatest monthly rainfall 11.38 inches at Murphy; least monthly rainfall 1.23 inches at Wilmington. Average number of clear days 8; partly cloudy 8; cloudy 15; rainy 13. Prevailing wind direction Southwest. Average hourly velocity 9.6 miles per hour. Normal direction for March Southwest; normal velocity 9.5 miles per hour.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i>	Wilmington.	W. P. BEALL, M. D.....	Greensboro.
S. WESTRAY BATTLE, M. D.....	Asheville.	W. J. LUMSDEN, M. D.....	Elizabeth City.
W. H. HARRELL, M. D.....	Williamston.	PROF. F. P. VENABLE.....	Chapel Hill.
JOHN WHITEHEAD, M. D.....	Salisbury.	J. C. CHASE, CIV. ENG.....	Wilmington.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.			

VOL. XII.

MAY, 1897.

No. 2.

County Superintendents, Term of Office.

As there seemed to be some doubt as to when the County Superintendent of Health, elected on the first Monday in May under the amendment to the act relating to the Board of Health, should assume office, the opinion of the Attorney General on that point was asked. The following is the correspondence:

North Carolina State Board of Health,
RALEIGH, May 7, 1897.

HON. Z. V. WALSER,

Attorney General:

DEAR SIR:—The question having come up in this office, I write to ask your opinion as to when a County Superintendent of Health, elected on the first Monday of the current month in accordance with the amendments to Chapter 214, Laws of 1893, adopted by the last General Assembly, should assume the duties of the office—immediately, or on the first Monday in September next, when the term for which

the present incumbents were elected expires?

As the Laws of 1897 have not been published, I enclose for your convenience certified copies of the amendatory acts as printed in the last issue of the Monthly Bulletin of the Board.

Awaiting your reply, I am,

Very respectfully yours,

RICH'D H. LEWIS,

Secretary.

North Carolina, Executive Department, Office of the Attorney General,

RALEIGH, May 15, 1897.

DR. R. H. LEWIS,

*Secy. and Treas. N. C. Board
of Health, Raleigh, N. C.:*

DEAR SIR:—In answer to your communication of the 7th instant, in regard to the term of office of County Superintendent of Health, elected on the first Monday in the present month, under Sec. 1, Laws 1897, I have to say that, under the decision of the Supreme Court in the recent "Asylum Cases," those Superintendents elected

on the first Monday in September, 1895, will serve out a two years' term of office, ending the first Monday in September, 1897. Those elected under the new law on the first Monday in May of the present month will not take office until the expiration of the terms of the Superintendents elected on the first Monday of September, 1895, that is to say, on the first Monday in September of the present year.

Very truly,

ZEB. V. WALSER,
Attorney General.

Mr. John C. Chase.

Since our last issue, the following letter has been received :

April 15, 1897.

DR. RICHARD H. LEWIS,

*Secy. N. C. Board of Health,
Raleigh, N. C. :*

MY DEAR SIR :—You are aware that my business engagements have been such of late as to require my absence the greater portion of the time, with a prospect that ere long I shall become a resident of another State. As I am not likely to be able to attend another meeting of the Board, it is perhaps best that I should sever my connection therewith, although the close proximity of the end of the term would hardly call for a formal resignation.

Please accept for yourself and the other members of the Board my best wishes for your future prosperity, both personal and official, with the assurance that I shall ever cherish pleasant recollections of my associations with you for the past four years.

Sincerely yours,

JOHN C. CHASE.

This letter was read with genuine regret, both professional and personal.

Without making any invidious distinctions, we feel safe in saying that the Board never had a more faithful or efficient member than Mr. Chase. His interest in everything pertaining to sanitation was active, and he was always a cheerful intelligent and energetic worker.

Our personal relations have always been of the pleasantest, and we realize that we have not only lost a valuable member of the Board, but the pleasure of frequent meetings with a friend. The best wishes of every member of the Board for success in his new work among his native granite hills at Derry, N. H., goes with him.

Bottle-fed Babies and the Hot Season.

As is well known, the greatest mortality occurs among bottle-fed babies during the heated term. The summer, which lasts so long in this latitude, is upon us, and we feel it to be our duty to direct the attention of our medical readers to the importance of impressing upon the mothers in their clientele who are debarred, from any cause, the privilege of nursing their children, *now*, before the little ones become sick, the imperative necessity for the proper care of the milk, and the perfect cleansing and disinfection of the bottle and other utensils employed. A lady in our office to day informed us that neither in the family of her mother with ten children nor in that of a sister with seven, all artificially fed, had a single case of summer diarrhoea or "teething disease" ever occurred, and that it was the habit of both mothers to invariably prepare the milk in person, and always to taste it before giving it to the child. The reward of unceasing care and eternal vigilance, which is the price of health

in bottle fed babies, as well as of liberty is thus clearly shown. And, too, this was before the value of sterilization and pasteurization of milk was known. As we cannot hope for such care and vigilance in general we must look to some method that will correct lapses in their application. We find this method in pasteurization, which, while it does not injure the nutritive qualities of the milk does effectually destroy its pathogenic qualities. It is a simple and cheap method, easily followed, and we believe that its routine use in all cases of artificially fed infants, from the beginning to the end of the warm season, not waiting until disease appears to introduce it, would be the means of saving numberless young lives, and saving at the same time an infinite amount of trouble and anxiety on the part of parents besides. In the light of the facts familiar to every well informed medical man it does seem to us clearly the duty of every family physician to impress upon the mothers among his patients the value of pasteurization in preventing diseases among babies fed by hand. If there is any one thing in this world of ours that we can count on with certainty it is the love of a mother for her offspring, and if she can be made to realize that by thus treating the milk, and at the same time seeing that the bottle and its accompaniments are kept clean, her little one will, with reasonable certainty, be protected against much sickness and perhaps death, she will be more than apt to carry out the directions. The reader desiring more detailed information on this subject is referred to a paper on "The Infectiousness of Milk," printed in the January number of the BULLETIN.

Summary of Reports from County Superintendents of Health for April, 1897. Eighty-two counties reporting.

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports, and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Mumps and whooping cough in some parts. Several cases of typhoid fever.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. No epidemic. The Yadkin river in the northeastern part of the county is in bad sanitary condition. The people up and down the river are having chills.

ALLEGHANY—Dr. Robt. Thompson, Sparta. One case of dysentery.

ANSON—Dr. E. S. Ashe, Wadesboro.

ASHE—Dr. L. C. Gentry, Crumpler. La grippe is still prevailing, causing quite a number of deaths among the aged.

BEAUFORT—Dr. Joshua Tayloe, Washington. Three cases of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. No diseases to report. Less sickness than usual.

BLADEN—Dr. Newton Robinson, Elizabethtown. Very little sickness.

BRUNSWICK—Dr. D. I. Watson, Southport. Twenty two cases of measles and eleven of whooping cough, principally in town. The County Commissioners say that no improvements can be made in the public buildings because there is no money in the treasury. The county is in debt, and the Legislature refused to allow them to issue bonds for the purpose.

BUNCOMBE—Dr. E. C. Starnes, Asheville. No contagious diseases.

BURKE—Dr. J. L. Laxton, Morganton. Twenty cases of whooping cough, and one of typhoid fever. More room is needed at the Home.

CABARRUS—Dr. Robt. S. Young, Concord. Fourteen cases of measles, ninety-one of whooping-cough and one of diphtheria.

CALDWELL—Dr. A. A. Kent, Lenoir. Ten cases of whooping cough and two of diphtheria.

CAMDEN—No Board of Health.

CARTERET—Dr. Geo. N. Ennett, Beaufort. Bronchial troubles.

CASWELL—Dr. W. O. Spencer, Yanceyville. Measles and mumps in all sections and a few of whooping cough. The condition of the jail is about as good as the building will admit.

CATAWBA—Dr. D. McD. Yount, Newton. Whooping cough is subsiding. Clark's Creek, a very sluggish stream, is in a condition which develops malaria all along its course. The jail and Home are well kept now, and are neat, except that there is one very large room in the jail in which a number of prisoners, usually negroes, are huddled together, and it is impossible to keep this decent.

CHATHAM—Dr. J. B. Matthews, Pittsboro. No diseases to report. The jail and County Home buildings have been cleaned and lime used freely during the month.

CHEROKEE—Dr. J. F. Abernathy, Murphy. No epidemics among the people. County very healthy. Hog cholera in some parts.

CHOWAN—Dr. R. H. Winborne, Barnitz. There was a supposed case of small-pox in Edenton, but it proved to be a mistake in diagnosis. We still have isolated cases of hog cholera. The great number of imperfectly drained swamps, and the almost universal use of surface water from shallow wells, are undoubtedly the causes of our endemic fevers. The officials endeavor to keep the jail and Home as clean as possible, and the Commissioners at the beginning of summer usually order a thorough white-washing.

CLAY—Dr. W. E. Sanderson, Hayesville. Health of county better than in many years. An epidemic of hog and chicken cholera. The sanitary conditions of public buildings better than any time in two years.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases reported.

COLUMBUS—Dr. I. Jackson, White-

ville. A few cases of mild catarrhal fever. In the last three months there have been a number of driven wells sunk in the lower part of the county, and I am glad to say the health of that section has been wonderfully improved. Where once malarial fever held high carnival, you now do not hear of it.

CRAVEN—Dr. J. W. Duguid, New Bern. One case of hemorrhagic malarial fever.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Six cases of measles and four of whooping cough.

DARE—Dr. W. B. Fearing, Manteo. No diseases reported.

DAVIDSON—Dr. John Thames, Lexington. Some malaria and dysentery.

DAVIE—Dr. James McGuire, Mocksville. Very little sickness.

DUPLIX—Dr. J. C. Grady, Magnolia. No report.

DURHAM—Dr. John M. Manning, Durham. No diseases to report.

EDGECOMBE—Dr. L. L. Staton, Tarboro. Five cases of measles in the southern part, one of diphtheria, and two of hemorrhagic malarial fever.

FORSYTH—Dr. E. F. Strickland, Bethania. Dysentery in some parts. Very little sickness.

FRANKLIN—Dr. E. S. Foster, Louisburg. La grippe, with some pneumonia here and there.

GASTON—Dr. J. H. Jenkins, Dallas. One case of diphtheria and one of typhoid fever. Mumps not quite so prevalent as last month.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Eight cases of measles. Health of county exceptionally good.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Measles (100) and malarial troubles in all parts. A few cases of pneumonia.

GUILFORD—Dr. W. J. Richardson, Greensboro. Whooping cough in all parts. Bronchial, catarrhal and malarial diseases.

HALIFAX—Dr. I. E. Green, Weldon. Thirty-five cases of measles and four of whooping cough. Very little sickness in most parts.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Six cases of typhoid fever. Very little serious sickness. Mild acute catarrhs of respiratory and digestive tracts.

HENDERSON—Dr. H. L. Ashworth, Hendersonville. Two cases of typhoid fever.

HERTFORD—Dr. John W. Tayloe, Union. One case of typhoid fever. Very little sickness.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Malarial fever, laryngeal, pulmonary and bronchial troubles.

JACKSON—Dr. Wm. Self, Webster. No diseases to report. Improvements have been made in the jail that will add to the comfort of prisoners.

JOHNSTON—Dr. R. J. Noble, Selma. A few chills in all parts.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Six cases of whooping cough. Little sickness.

LINCOLN—Dr. Thos. F. Costner, Lincoln. No report.

MCDOWELL—Dr. George I. White, Marion. Very little sickness. A few cases of diarrhea and dysentery, and several cases of ulcerated sore throat.

MACON—Dr. S. H. Lyle, Franklin. A few cases of whooping cough.

MADISON—Dr. Jas. K. Hardwicke, Marshall. No serious disease has prevailed.

MARTIN—Dr. W. H. Harrell, Williamston. No diseases to report. The County Home needs repairing and needs extra help.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Dysentery in several parts.

MITCHELL—Dr. C. E. Smith, Bakersville. No report.

MONTGOMERY—Dr. W. A. Simmons, Troy. No diseases to report.

NASH—Dr. J. J. Mann, Nashville. Some dysentery.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Whooping cough, 100; scarlatina, 1; typhoid fever, 3; pernicious, 1, and hemorrhagic malarial fever, 1.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Whooping cough and measles prevalent in some parts.

ONSLOW—Dr. E. L. Cox, Jacksonville. A few cases of malarial fever and of pneumonia.

ORANGE—Dr. D. C. Parris, Hillsboro. Measles, respiratory and malarial diseases.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Several cases of whooping cough; two of typhoid fever. La grippe and malarial fever.

PENDER—Dr. Geo. F. Lucas, Currie. Five cases of whooping cough. Good sanitary laws rigidly enforced are needed in our small towns and villages.

PERQUIMANS—Dr. C. C. Winslow, Winfall. Two cases of pneumonia. Very little sickness.

PERSON—Dr. J. A. Wise, Roxboro. Whooping cough.

PITT—Dr. Frank W. Brown, Greenville. A dozen or more cases of erysipelas. Some influenza, pneumonia and dysentery.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Little sickness.

RICHMOND—Dr. W. H. Steele, Rockingham. Two cases of typhoid fever and a few of dysentery.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Lumberton has voted for sewer bonds, and we will have great improvement in our sanitary condition.

ROCKINGHAM—Dr. Samuel Ellington, Wentworth. Five cases of scarlatina. Influenza in all parts. The sanitary arrangement of the jail is bad, but its condition is as good as can be expected.

ROWAN—Dr. John Whitehead, Salisbury. Six cases of typhoid fever. Bronchitis and malarial fever in various parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. No diseases to report. The sanitary condition of the jail is as good as can be under the circumstances; the building is a bad one.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Health of county fairly good. No epidemic diseases to report. The jail is being overhauled and thor-

oughly cleaned and a new sewer put in. Dr. Stevens has been re-elected Superintendent of Health.

STANLY—Dr. D. P. Whitley, Millingport. Whooping cough in nearly all parts. One case of typhoid fever.

STOKES—Dr. W. L. McCanless, Danbury. Influenza in all parts.

SURRY—Dr. John R. Woltz, Dobson. Measles in the southwestern part. A few cases of influenza, diarrhoea and dysentery. Attention is being paid to having cells at the jail and houses at the Home whitewashed. Since the formation of the chain-gang at work on the public roads the health of prisoners, heretofore confined in cells, is much improved.

SWAIN—Dr. A. M. Bennett, Bryson City. No diseases to report.

TRANSYLVANIA—Dr. M. M. King, Brevard. One case of scarlatina. Quarantine and disinfection carried out according to law.

UNION—Dr. J. E. Ashcraft, Monroe. One case of diphtheria and three of typhoid fever. Some dysentery.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of whooping cough, pneumonia, catarrhal and mild malarial fevers throughout the county.

WAKE—Dr. P. E. Hines, Raleigh. Twelve cases of whooping cough. Scattered cases of bronchitis, colds, pneumonia, diarrhoea and malarial troubles. Health of county very good. An epidemic of chicken cholera near Wakefield.

WARREN—Dr. Geo. A. Foote, Warrenton. Measles and influenza in many parts.

WASHINGTON—Dr. W. H. Ward, Plymouth. Chicken-pox, German measles and pneumonia in all parts.

WATAUGA—Dr. W. B. Council, Boone. Ten cases of measles in the western part. Measles has about subsided. Nothing else to report.

WAYNE—Dr. W. J. Jones, Goldsboro. Measles 77, in town and rural districts.

WILKES—Dr. J. M. Turner, Wilkesboro. Two cases of typhoid fever. No other disease to report. I think our Commissioners will have a long-needed improvement made in our jail very soon, *i. e.*, the putting in of a sewerage system.

WILSON—Dr. N. Anderson, Wilson. A few cases of measles.

YADKIN—Dr. T. R. Harding, Yadkinville. Not much sickness of any kind.

YANCEY—Dr. J. L. Ray, Burnsville. No epidemic of consequence in any part. The jail is in pretty fair condition. The present jailer is very careful. The Home is tolerably well kept.

Review of Diseases for April, 1897.

BRONCHITIS—From Guilford, Rowan and Wake.

CHOLERA IN HOGS—From Cherokee, Chowan and Clay.

CHOLERA IN CHICKENS—From Clay and Wake.

DIARRHOEA—From Irebell, McDowell, Surry and Wake.

DIPHTHERIA—From Cabarrus, Caldwell and Edgecombe.

DYSENTERY—From Alleghany, Davidson, Forsyth, McDowell, Mecklenburg, Nash, Pitt, Richmond, Surry and Union—10 counties.

ERYSIPELAS—From Pitt.

INFLUENZA—From Ashe, Pasquo-

tank, Pitt, Rockingham, Stokes, Surry and Warren.

MALARIAL FEVER—From Craven, Davidson, Edgecombe, Guilford, Iredell, Johnston, New Hanover, Onslow, Orange, Pasquotank, Rowan, Vance and Wake—13 counties.

MALARIAL FEVER, HEMORRHAGIC—From Craven, Edgecombe and New Hanover.

MALARIAL FEVER, PERNICIOUS—From New Hanover.

MEASLES—From Brunswick, Cabarrus, Caswell, Cumberland, Edgecombe, Halifax, Northampton, Orange, Surry, Warren, Watauga, Wayne and Wilson—13 counties.

MUMPS—From Alamance and Caswell.

PNEUMONIA—From Onslow, Perquimans, Pitt and Wake.

RÖTHELN—From Washington.

SCARLATINA—From New Hanover, Rockingham and Transylvania.

TYPHOID FEVER—From Alamance, Beaufort, Burke, Haywood, Henderson, Hertford, New Hanover, Pasquo-

tank, Richmond, Rowan, Stanly, Union and Wilkes—13 counties.

VARICELLA—From Washington.

WHOOPIING COUGH—From Alamance, Brunswick, Cabarrus, Caldwell, Caswell, Cumberland, Guilford, Lenoir, Macon, New Hanover, Northampton, Pasquotank, Pender, Person, Stanly and Wake—16 counties.

Summary of Mortuary Reports for April, 1897. (Twenty-four towns.)

The towns whose reports are not vouched for, printed in small type, are not included.

	White.	Col'd.	Total.
Aggregate population.....	73,322	55,163	128,485
Aggregate deaths.....	60	86	146
Representing annual death rate per 1000.....	9.8	18.8	13.7
<i>Causes of Death.</i>			
Typhoid fever.....	2	1	3
Malarial fever.....	0	1	1
Whooping cough.....	1	6	7
Measles.....	3	0	3
Pneumonia.....	7	15	22
Consumption.....	8	13	21
Brain diseases.....	5	4	9
Heart diseases.....	3	8	11
Neurotic diseases.....	1	1	2
Diarrhoeal diseases.....	3	6	9
All other diseases.....	27	30	57
Accident.....	0	1	1
	60	86	146
Deaths under 5 years.....	19	33	46
still-born.....	4	12	19

Condition of Jails and County Homes by Counties for April, 1897.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		29 (a)					26			
Alexander.....	good	1				good	4			2
Alleghany.....							8			
Anson.....										
Ashe.....		1					12	500		2
Beaufort.....	good	14				good	12			
Bertie.....	very good	12 (b)		1	0	very good	12		7	3
Bladen.....	no change	3				no change	4			
Brunswick.....	+	2	*	0	0	+	14	800	0	0
Buncombe.....		109 (c)	426	22	91		41	745	19	28
Burke.....	no change	7				no change	17			
Cabarrus.....	good	41 (d)	*	7	14	good	26	*	13	14
Caldwell.....		6	*	0	5		5	*	0	3
Camden.....										
Carteret.....		0					0			
Caswell.....	+	3				fair	32			
Catawba.....	+	9	476	2	5	well kept	32	523	11	12
Chatham.....	good+	8			3	good+	24			3
Cherokee.....	good					good				
Chowan.....	fair+	4		0	0	fair+	5		1	0
Clay.....	+	0				+	0			
Cleveland... very good		0				very good	12			
Columbus.....	good	8	*			good	6	*		
Craven.....	excellent									
Cumberland.....		12					18			
Currituck.....										
Dare.....										
Davidson.....	good	6				good	28			
Davie.....	no change	3		0	1	good	6		2	0
Duplin.....										
Durham.....	good	46 (e)	959			good	20	*		
Edgecombe.....		14		0			21			4
Forsyth.....	fair	32	1,000	4	8	good	24	1,000	5	6

* Space exceeds 1,000 cubic feet. +See Summary of Reports from County Superintendents of Health. (a) Includes 22 in House of Correction. (b) Includes 9 in House of Correction. (c) Includes 64 in House of Correction. (d) Includes 31 in House of Correction. (e) Includes 27 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	9	*			very good	19	*		
Gaston	well kept					well kept				
Gates										
Graham										
Granville		6					31			
Greene	good	0				good	9	*	4	4
Guilford	fair	79 (a)				very good				
Halifax		6		2	3		51		15	17
Harnett										
Haywood	good	5		0	3	good	7		0	1
Henderson	fair	1	*			fair	3			
Hertford	no change	2	*	0	0	no change	10	*	10	2
Hyde										
Iredell	crowded	59 (b)	385			no change	25			
Jackson		10			9	no change	2	716		1
Johnston		4	*				13	*		
Jones										
Lenoir										
Lincoln	good	1	*	0	0	good	23	600	12	6
McDowell										
Macon	good	1	*	0	1	good	8	650	4	5
Madison	crowded	20				good	19	400	6	9
Martin	good	1	*	0	0	bad	12	*	3	0
Mecklenburg	good	78 (c)	*			good	6	*		
Mitchell										
Montgomery	very good	1				very good	17	500		
Moore										
Nash	good	3	600	3	3	good	27	1,000	8	9
New Hanover	crowded	51 (d)		23	43	good	26	*	24	10
Northampton	good	6	1,000	0	2	good	28	900	8	11
Onslow	fair	0				fair	6			
Orange	not good	7	500	2	7	good	22	1,000	18	6
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 52 in House of Correction. (b) Includes 33 in House of Correction. (c) Includes 72 in House of Correction. (d) Includes 3 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		3	*	0	0		29		0	1
Pender.....	fair	3		0	0	fair	5		0	0
Perquimans.....	good	2				good	6			
Person.....	good	3				good	13			
Pitt.....		13			2		30	*		2
Polk.....		3	*	1	3					
Randolph.....		5					55			
Richmond.....	fair	14	*	0	8	fair	30	*	0	10
Robeson.....	fair	20 (a)				fair				
Rockingham.....	+	11	*			fair	32	800		
Rowan.....			500	4	5		14	500	6	5
Rutherford.....	†	2					16			
Sampson.....	†	5				very good	21			
Stanly.....	no change	0				no change	7	*	0	1
Stokes.....	good	8	600	2	3	good	12	600	4	4
Surry.....	+	11	360		4	+	23	*		3
Swain.....	good	8	400	0	8	good	4	700	1	0
Transylvania.....	fair	3	*	0	0	fair	3	*	0	0
Tyrrell.....										
Union.....	good	12				good	28			
Vance.....	good	9	*	0	2	good	15	*	2	2
Wake.....	good	75 (b)				no change	62			
Warren.....	good	0				good	23		2	2
Washington.....		3	820		2		3	*	1	1
Watauga.....	good	10				good	9			
Wayne.....	very good	10				very good	16			
Wilkes.....	†	8					7			
Wilson.....	good	5				good	23			
Yadkin.....	good	5		0	2	fair	25		0	5
Yancey.....	fair	6	450	0	4	fair	3			

* Space exceeds 1,000 cubic feet. † See Summary of Reports of County Superintendents of Health. (a) Includes 13 in House of Correction. (b) Includes 65 in House of Correction.

Mortuary Report for April, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.													TOTAL DEATHS.		Still Born.				
		By Races.	Total.	By Races.	Total.	Epidemic Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Nervous Diseases.	Diarrheal Diseases.	All other Diseases.		Accident.	Suicide.	Violence.	By Races.	By Towns.
Asheville.....	White.	8,000		12.0								7		1							8		
Dr. E. C. Starnes.....	Colored.	4,000	12,000	0.0	8.0																0	8	
CHARLOTTE.....	White.	10,855		15.5		1						2	4	1		6					14	24	4
C. A. Spratt, H. Olt'r.....	Colored.	8,796	19,651	13.6	14.6							1	1	3		3					10	3	1
Durham.....	White.	4,000	6,000	9.0	6.0		1					1	1								3	3	1
Dr. J. M. Manning.....	Colored.	2,000		0.0																	0		
FAYETTEVILLE.....	White.	3,500		3.4										1							1	4	
Dr. J. V. McGowan.....	Colored.	2,500	6,000	14.4	8.0							1	1	1							3		
GOLDSBORO.....	White.	3,700		19.5						1		1	2			2					6	8	1
T. H. Bain, Sec. B. H. S.....	Colored.	2,000	5,700	12.0	16.8										1						2	7	1
GREENSBORO.....	White.	5,500		15.3								2	1	1		1	2				7	12	4
J. S. Michaux, City Clk.....	Colored.	2,500	8,000	24.0	18.0				1			1		2		1					5	12	3
HENDERSON.....	White.	2,250		5.3												1					1	2	
Dr. W. J. Judd.....	Colored.	2,000	4,250	6.0	5.6							1									1		
HILLSBORO.....	White.	400		0.0																	0		
Dr. D. C. Parris.....	Colored.	500	700	40.0	17.1							1										1	
LENOIR.....	White.	800		0.0																	0		
Dr. A. A. Kent.....	Colored.	300	1,100	40.0	10.9											1						1	
MARION.....	White.	800		15.0													1				1		
Dr. G. I. White.....	Colored.	200	1,000	0.0	12.0																0	1	
MONROE.....	White.	1,800		0.0																	0		
Dr. J. M. Blair.....	Colored.	600	2,100	40.0	10.0							1				1					2	2	
OXFORD.....	White.	1,500		8.0									1								1		
Dr. T. L. Booth.....	Colored.	1,000	2,500	12.0	9.6											1					1	2	
RALEIGH.....	White.	7,200		8.3												1	4				5		
T. P. Sale, Clerk B. H. S.....	Colored.	6,000	13,200	18.0	12.7							1	1	1	1	1	4				9	14	4
ROCKINGHAM.....	White.	1,300		9.2																	1		
Dr. W. H. Steele.....	Colored.	450	1,750	26.7	13.7									1							1	2	
ROCKY MOUNT.....	White.	1,600		0.0																	0		
Dr. G. L. Wimberley.....	Colored.	1,000	2,600	0.0	0.0																0	0	
SALEM.....	White.	3,942		12.2								1				3					4		
S. C. Butler, H. Olt'r.....	Colored.	312	4,284	70.2	16.8									1		1					2	6	1
SALISBURY.....	White.	4,000		12.0		1						1	1	1							4		
Dr. John Whitehead.....	Colored.	1,500	5,500	72.0	28.4							3	2	1		1	2				9	13	0
SCOTLAND NECK.....	White.	775		0.0																	0		
Mayor J. A. Perry.....	Colored.	425	1,200	0.0	0.0																0	0	
SOUTHPORT.....	White.	800		30.0							2										2		
E. B. Stevens, City Clk.....	Colored.	400	1,200	0.0	20.0																0	2	1
Statesville.....	White.	2,500		9.6								1	1								2		
Dr. W. J. Hill.....	Colored.	1,000	3,500	0.0	6.8																0	2	
TARBORO.....	White.	1,200		0.0																	0		
Dr. L. L. Staton.....	Colored.	1,300	2,500	0.0	0.0																0	0	
WARRENTON.....	White.	1,000		12.0													1				1		
Dr. Geo. A. Foote.....	Colored.	500	1,500	0.0	8.0																0	1	
WASHINGTON.....	White.	3,000		4.0													1				1		
Dr. Joshua Tayloe.....	Colored.	2,500	5,500	9.6	6.5							1					1				2	3	1
WELDON.....	White.	700		0.0																	0		
Mayor J. T. Gooch.....	Colored.	750	1,450	32.0	16.5			1									1				2		
WILMINGTON.....	White.	9,000		12.0						1		1	2			1	4				9		
Dr. J. C. Shepard.....	Colored.	13,000	22,000	24.9	19.7	1				5		4	4	1			12				27	36	14
WILSON.....	White.	2,500		0.0																	0		
Dr. N. Anderson.....	Colored.	2,000	4,500	6.0	2.7													1			1	1	
WINSTON.....	White.	5,200		4.6									1								2		
Dr. John Bynum.....	Colored.	4,800	10,000	17.5	9.6							2	1				1	2	1		7	9	1

N. B. The reporters for the cities and towns printed in large type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, APRIL, 1897.

Furnished by the North Carolina Climate and Crop Service.

C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									NO. OF DAYS.						Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.	Rainy.		
Asheville.....	54.2	83	25	67.5	29	11	41.0	54	26.5	3.81	18	9	3	12	S	
Beaufort.....	61.2	78	8	69.8	38	21	52.7	40	17.1	3.53	14	6	10	7	NE	
Charlotte.....	59.6	86	29	70.0	35	21	49.2	51	20.8	3.94	16	7	7	10	S	
Chapel Hill.....	58.4	88	29	71.0	31	21	45.8	57	25.2	3.31	24	1	5	9	SW	
Highlands.....	49.7	74	28	60.9	25	10	37.9	49	23.0	7.70	16	10	4	9	W	
Henderson.....	58.0	90	25	70.9	28	2	45.1	62	25.8	3.25	15	8	7	11	SE	
Littleton.....	56.3	88	25	70.1	25	2	42.5	63	27.6	3.23	10	10	10	7	SW	
Louisburg.....	58.9	88	25	72.1	27	2	45.8	61	26.3	4.30				9		
Lenoir.....	54.7	82	25	65.8	33	18	45.1	49	20.7	5.17	9	16	5	7	W	
Monroe.....	59.0	84	25	71.3	29	21	43.6	55	24.7	4.81	19	5	6	8	SW	
Morganton.....	52.6	78	25	64.5	30	21	44.9	48	19.6	4.99				6	SW	
Mt. Airy.....	54.6	84	24	68.3	26	2	40.9	58	27.4	3.45	16	10	4	6	SW	
Moncure.....	59.9	86	25	73.5	30	2	46.3	56	27.2	2.89	17	2	10	6	SW	
Newbern.....	62.2	83	30	70.5	40	2	53.9	43	16.6	1.91	20	4	6	7		
Oak Ridge.....	56.4	84	25	68.7	29	2	44.0	55	24.7	3.96	20	5	5	9	NE	
Pittsboro.....	56.0	85	25	67.9	27	2	45.1	58	22.8	3.70	18	5	7	9	SW	
Raleigh.....	60.0	86	25	70.8	32	2	49.1	54	21.7	4.66	14	10	6	11	S	
Roxboro.....	57.0	87	24	71.1	25	2	42.8	62	28.3	1.92	14	8	8	8		
Rockingham.....	61.3	89	29	74.6	35	21	48.0	54	26.6	2.67	19	6	5	7		
Southport.....	61.7	77	6	70.5	36	2	52.8	41	17.7	1.82	9	8	14	8	S	
Salisbury.....	59.6	88	28	72.5	33	21	46.7	55	25.8	2.40				7		
Selma.....	59.2	89	25	70.9	30	2	47.4	59	22.5	4.45				8		
Saxon.....	56.8	88	25	71.4	28	2	42.2	60	29.2	3.26	15	9	6	9	NE	
Tarboro.....	59.0	90	24	74.0	26	2	44.1	64	29.9	2.81	19	5	6	12	S	
Weldon.....	57.8	87	25	70.3	27	2	45.2	60	25.1	3.10	14	11	5	5	S	
Wilmington.....	61.4	84	25	70.5	35	21	52.3	49	18.2	2.17	15	11	4	11	S	

State Meteorological Summary for April, 1897.

Mean barometer 30.14 inches; normal for April 30.04. Highest barometer 30.68 on the 21st at Raleigh. Lowest barometer 29.60 on the 9th at Charlotte. Mean temperature 57.6 degrees; normal for April 57.9. Highest temperature 91 on the 30th at Greensboro. Lowest temperature 22 on the 21st at Linville. Average rainfall 3.68 inches; normal for April 3.78 inches. Greatest monthly rainfall 10.57 inches at Lynn; least monthly rainfall 0.98 inches at Edenton. Average number of clear days 16; partly cloudy 7; cloudy 7; rainy 8. Prevailing wind direction Southwest. Average hourly velocity 8.7 miles. Normal direction for April Southwest; normal velocity 8.8 miles per hour.





BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> ,.....	Wilmington.	C. J. O'HAGAN, M. D.,.....	Greenville.
S. WESTRAY BATTLE, M. D.,.....	Asheville.	J. D. SPICER, M. D.,.....	Goldsboro.
W. H. HARRELL, M. D.,.....	Williamston.	J. L. NICHOLSON, M. D.,.....	Richlands.
JOHN WHITEHEAD, M. D.,.....	Salisbury.	A. W. SHAFFER, CIV. ENG.,.....	Raleigh.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.			

VOL. XII.

JUNE, 1897.

No. 3.

Annual Meeting of the State Board of Health.

In accordance with Section 8 of the "Act relating to the Board of Health" this occurred "on the second day of the annual meeting of the Medical Society of the State of North Carolina," and therefore at Morehead City on Wednesday, 9th instant.

The term of office of all the members of the board expiring at this meeting, his Excellency Governor Russell appointed Drs. C. J. O'Hagan of Greenville, J. D. Spicer of Goldsboro, J. L. Nicholson of Richlands, Col. A. W. Shaffer, Civil Engineer of Raleigh, and re-appointed the present Secretary. At the conjoint session of the old board with the State Medical Society, Drs. George G. Thomas of Wilmington, S. Westray Battle of Asheville, W. H. Harrell of Williamston and John Whitehead of Salisbury were re-elected. As thus constituted the Board met, all the members, except Dr. Battle, absent in Europe, and Dr. Whitehead, detained, we deeply regret to say, by the fatal illness of his young son, were present. Drs. George G. Thomas and Richard

H. Lewis were unanimously re-elected President and Secretary respectively. A chemical and a bacteriological examination of all municipal water supplies in the State was ordered, and the Engineer of the Board was appointed to collect, pack and ship the samples, and at the same time to inspect the works and water-sheds, and make report thereon. Upon the statement by the Secretary that, for various satisfactory reasons, the new edition of health pamphlets ordered at the last meeting had not been printed, it was decided, in view of the present condition of the State treasury, to postpone their re-issue until a more favorable time. This necessity is much to be regretted, as the pamphlets, according to the testimony given by some of the members of the Board, have been eagerly read and discussed by the people, and have therefore done much to advance the cause of sanitation in the State. For the same reason the discontinuance of the *Bulletin* was discussed, but it was felt that such a step would plainly be backward, and the idea did not meet with favor. Instead, it was

decided to cheapen it by omitting some of the tables and the monthly reports from County Superintendents, and to change its character somewhat, in the discretion of the Secretary, so as to make it a more potent agency of instruction rather than of statistics. The number of copies printed was ordered to be increased sufficiently for the purpose, and one mailed regularly to every registered physician in the State. We feel sure that both actions will be of benefit. The inertia of the medical profession being one of the greatest obstacles to sanitary progress (although the President of the Medical Society in his address suggested that it was a question as to what extent a physician ought to be expected to take bread out of his own mouth and those of his wife and children), we hope, by this monthly talk with all our doctors to quicken their interest in this truly noble work of saving their neighbors from sickness and death, regardless of its effect upon the bread question.

Goldsboro was selected as the place for the next annual health conference with the people, the time to be fixed by the President and Secretary of the Board, after consultation with the resident health officials.

The Engineer of the Board was appointed to attend the next annual gathering of his profession and the Secretary the National Conference of State Boards of Health which is to meet in Nashville in August.

The conjoint session with the medical society was one of the most successful in the history of the Board. While the usual hegira promptly began upon the announcement that the hour for the joint meeting had arrived, it was comparatively small, and a number of the

best men in the society remained. After suitable remarks by President Thomas on assuming the chair, the Secretary's annual report was read. Thereafter the question of the advisability of asking for legislation requiring the quarantining of measles—suggested by the President in his opening remarks—was taken up and elicited a lively discussion. While as a matter of theoretical sanitation it was considered to be all very well, as a practical question applied to the rural districts of North Carolina it was not favored. Measles in childhood is generally regarded as a matter of course, a necessary and, usually, a trivial evil, and any attempt to impose the inconvenient and irksome restrictions of a quarantine for such a disease would cause great dissatisfaction in the present state of public sentiment as to sanitation. And after all, heretical as it may sound, is not it just as well that children should have the measles? It is hardly to be expected that many can go through life without exposure at some time to this wide-spread disease, and it is well known that it is much more dangerous to adults, to say nothing of its greater inconvenience at that period of life. Think of the mother of a large family of children, to whom her daily ministrations are a necessity, taking it from one of her children. In Utopia doubtless measles has been stamped out but the old North State is not yet Utopia—not quite.

In our bieunial report the report of the bacteriologist on one of the water supplies in the State showed a very large number of bacteria, and a newspaper in another State commented editorially on it, and warned its readers to avoid that town. In consequence the representatives in the

society from that community were disposed to find fault with us for printing it. But the bacteriologist stated that there was no ice with the sample, and no one who knows anything about it would therefore condemn the water on that score, and if the newspaper failed to call attention to that fact it would seem that there was some malice behind the pen that wrote the article. After writing instructions for taking, packing and shipping the sample of water so plain and simple that we were almost afraid that we had insulted the intelligence of our health officers, and paying all the expenses incident thereto, the responsibility rests upon the local health officer. But nothing could have happened so calculated to insure the purity of that particular municipal water supply hereafter. The consciousness of being watched, and of the danger of being criticized by the unfriendly newspaper, practically guarantees the future purity of that particular water. It was just what the Board hoped to accomplish when a year ago it ordered a single examination (all it could pay for) made. The water company itself will see to the purity of its water. Hereafter the samples will be taken by a member of the Board in person, as indicated above.

We shall miss the retiring members of the Board greatly, and we feel that some special acknowledgment should be made to Prof. Venable and Mr. Chase for their long and faithful service, both being always so interested and so helpful, by writing papers and talking at the health conferences, as well as in the routine ways. But the new appointments of His Excellency are all strong men—"present company, of course, excepted"—and we feel that

the Board will continue to be a beneficent influence in the State.

Summary of Reports from County Superintendents of Health for May, 1897. (Eighty counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping-cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports, and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Several cases of whooping-cough and some typhoid fever.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Two cases of typhoid fever. The Yadkin river in the north-eastern part of the county is the cause of malarial fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Dysentery in the eastern and northern parts.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. General health of county never better.

BEAUFORT—Dr. Joshua Tayloe, Washington. Twenty cases of measles and three of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Slight bowel troubles. Less sickness than usual.

BLADEN—Dr. Newton Robinson, Elizabethtown. No diseases of an epidemic nature.

BRUNSWICK—Dr. D. I. Watson, Southport. Measles and whooping cough in many sections. Some typhoid fever.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Two cases of measles.

BURKE—Dr. J. L. Laxton, Morganton. Bowel troubles among children in some parts. Very little sickness. More room is needed at the home.

CABARRUS—Dr. Robt. S. Young, Concord. Thirty-seven cases of measles, 23 of whooping-cough, 2 of diphtheria, 4 of typhoid fever, and many of dysentery.

CALDWELL—Dr. A. A. Kent, Lenoir. One case of typhoid fever; stomach and bowel troubles of rather mild form prevailing generally.

CAMDEN—No Board of Health.

CARTERET—Dr. Geo. N. Ennett, Beaufort. No diseases reported. I would recommend that separate cells be fitted up in the jail for the colored and white prisoners.

CASWELL—Dr. W. O. Spencer, Yanceyville. Mumps, whooping-cough and bowel troubles in nearly all parts. Some remittent and intermittent fever in scattered sections. The jail is in

about as good condition as the building will permit.

CATAWBA—Dr. D. McD. Yount, Newton. Whooping-cough in all parts. Two cases of typhoid fever and three of hemorrhagic malarial fever. The jail and county home are as clean and as well kept as the faulty construction will admit.

CHATHAM—Dr. J. B. Matthews, Pittsboro. Two cases of scarlatina. The jail has recently been cleaned up and disinfected.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Erysipelas unusually prevalent. Four cases of fatal puerperal septicæmia in the last three weeks. Hog cholera in all parts, though not so fatal as usual. An epidemic of roup in fowls.

CHOWAN—Dr. R. H. Winborne, Rockyhook. A few cases of intermittent fever and bowel trouble in all parts. The county commissioners have ordered all buildings at the county home whitewashed inside and out.

CLAY—Dr. W. E. Sanderson, Hayesville. No contagious or infectious diseases.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. Two cases of measles and of typhoid fever, and many of whooping-cough. Some diarrhoea. Hog cholera in many parts, but not to the extent of former years.

CRAVEN—Dr. J. W. Duguid, Dover. No report.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. No diseases reported.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No sickness to report.

DAVIDSON—Dr. John Thames, Lexington. Two cases of typhoid fever. Dysentery in all parts. The jail and county home have recently been white-washed and are in good condition.

DAVIE—Dr. James McGuire, Mocksville. No diseases reported.

DUPLIN—Dr. F. H. Arthur, of Magnolia, was elected Superintendent of health in January.

DURHAM—Dr. John M. Manning, Durham. No report.

EDGECOMBE—Dr. L. L. Staton, Tarboro. Diarrhoea to some extent.

FORSYTH—Dr. E. F. Strickland, Bethania. Dysentery in all parts. The sanitary condition along "Muddy Creek" is bad, as there is much decaying organic matter in said creek, causing malarial fever.

FRANKLIN—Dr. E. S. Foster, Louisburg. Dysentery of mild type in many parts.

GASTON—Dr. J. H. Jenkins, Dallas. Typhoid fever reported from different sections. One case of pneumonia. A few cases of mumps.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. An unusual amount of malarial disease over the county.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Measles all over the county—a hundred or more cases. One case of typhoid fever.

GUILFORD—Dr. W. J. Richardson. Whooping-cough. Dysentery very prevalent.

HALIFAX—Dr. I. E. Green, Weldon.

Fifty cases of measles. Bowel troubles in some parts.

HAYWOOD—Dr. J. Howell Way, Waynesville. Very little sickness. A few cases of enteric troubles of simple form. Dr. Way has been re-elected Superintendent of Health by the County Commissioners.

HENDERSON—Dr. H. L. Ashworth, Hendersonville. Five cases of typhoid fever. Improvements have been made in the jail building and grounds.

HERTFORD—Dr. John W. Tayloe, Union. General health of county good.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Mumps and bowel troubles.

JACKSON—Dr. Wm. Self, Webster. Four cases of typhoid fever. The sanitary condition of the public buildings is good, except that the spring at the home has been condemned until cleaned and that the ventilation of the jail has been reported to the County Commissioners as bad.

JOHNSTON—Dr. R. J. Noble, Selma. Measles in the eastern part of the county.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. No report.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Two cases of whooping-cough. Dysentery and malarial fever in all parts.

MCDOWELL—Dr. George I. White, Marion. Several cases of whooping-cough and a few of dysentery and typhoid fever. One of pneumonia.

MACON—Dr. S. H. Lyle, Franklin. Two cases of typhoid fever. Diarrhoea and dysentery in all parts.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Stomach and intestinal diseases.

MARTIN—Dr. W. H. Harrell, Williamston. A few cases of diarrhoea and dysentery.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. No report.

MITCHELL—Dr. C. E. Smith, Bakersville. Some pertussis in the western part. Less sickness than for months. The sanitary condition of the jail is very bad. Preparations for a new jail are going on. Dr. Smith is a member of the building committee.

MONTGOMERY—Dr. W. A. Simmons, Troy. Bowel complaints in many parts.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mamm, Nashville. No report.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Whooping-cough and diarrhoea in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. A great many cases of measles and whooping cough in some parts.

ONslow—Dr. E. L. Cox, Jacksonville. One case of whooping-cough. Diarrhoea and dysentery in some parts. An epidemic of hog cholera.

ORANGE—Dr. D. C. Parris, Hillsboro. Some cases of whooping-cough and measles. Bowel diseases in all parts. Malarial diseases are with us early this season.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. One case of typhoid fever. Malarial diseases in several parts.

PENDER—Dr. Geo. F. Lucas, Currie. No diseases to report.

PERQUIMANS—Dr. C. C. Winslow, Winfall. One case of diphtheria. A few cases of cholera infantum and dysentery.

PERSON—Dr. J. A. Wise, Roxboro. Whooping-cough in all parts. The jail is now in especially good sanitary condition.

PITT—Dr. Frank W. Brown, Greenville. Diarrhoea, some dysentery and malarial fever in most parts. The sanitary condition of the county home has lately grown worse, and the food supplied is not so good as formerly.

POLK—Dr. C. J. Kenworthy, Tryon. Health of county excellent. Have noticed within the last two months an unusual number of cases of catarrhal inflammation of the frontal sinuses.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Two cases of scarlatina and two of diphtheria. Little sickness.

RICHMOND—Dr. W. H. Steele, Rockingham. Dysentery, rubella and typhoid fever to a limited extent.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported. Lumberton will soon have a system of water works and sewers. Dr. H. T. Pope, of Lumberton, has been elected Superintendent of Health.

ROCKINGHAM—Dr. Samuel Ellington, Wentworth. Dysentery in all parts. Six cases of whooping-cough. The sanitary arrangement of the jail is bad.

ROWAN—Dr. John Whitehead, Salisbury. No report.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. No diseases to report.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Bowel diseases common; a few cases of whooping-cough and malarial fever, and one of typhoid fever.

STANLY—Dr. D. P. Whitley, Millingport. Whooping-cough of a severe type epidemic. Diarrhœa and dysentery in all parts.

STOKES—Dr. W. S. McCanless, Danbury. Six cases of measles. Whooping-cough (25) in all parts.

SURRY—Dr. John R. Woltz, Dobson. Two cases of typhoid fever. Measles in the southwestern part. Dr. Woltz was re-elected Superintendent of Health on the first Monday in May.

SWAIN—Dr. A. M. Bennett, Bryson City. No diseases reported.

TRANSYLVANIA—Dr. M. M. King, Brevard. No diseases reported.

TYRRELL—No Board of Health.

UNION—Dr. J. E. Ashcraft, Monroe. Fifteen cases of whooping-cough and three of typhoid fever. Diarrhœa and dysentery in town and county.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of whooping-cough. Two cases of scarlatina; they were isolated, and there has been no spread of the disease. Diarrhœa, dysentery and gastro-intestinal ailments have prevailed to a moderate extent.

WAKE—Dr. P. E. Hines, Raleigh. Twelve cases of whooping-cough and three of diphtheria. Diarrhœa, dysentery and malarial fevers. A mild epidemic of hog and chicken cholera in the southwestern part. Some improvement in the buildings is needed at the work-house. Seven reports were received for May.

WARREN—Dr. Geo. A. Foote, Warrenton. Measles, grippe, bronchitis and pneumonia.

WASHINGTON—Dr. W. H. Ward,

Plymouth. One case of typhoid fever. Dysentery, r  theln and malarial fever in all parts.

WATAUGA—Dr. W. B. Council, Boone. Whooping-cough in all parts. Very little sickness.

WAYNE—Dr. W. J. Jones, Goldsboro. Measles in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. Four cases of typhoid fever. The sewerage in the jail, spoken of in the last report, has been put in, and will doubtless prove of great benefit to the health of the prisoners.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. Some dysentery of mild type and some malarial fever. There are some creeks that need drainage and a pond that causes fever.

YANCEY—Dr. J. L. Ray, Burnsville. Several cases of typhoid fever.

Review of Diseases for May, 1897.

BOWEL DISEASES—From Alleghany, Bertie, Burke, Cabarrus, Caldwell, Chowan, Davidson, Edgecombe, Forsyth, Franklin, Guilford, Halifax, Haywood, Iredell, Lincoln, McDowell, Macon, Madison, Martin, Montgomery, New Hanover, Onslow, Orange, Perquimans, Pitt, Richmond, Rockingham, Sampson, Stanly, Union, Vance, Wake, Washington, Yadkin—34 counties.

CHOLERA IN HOGS—From Cherokee, Columbus, Onslow and Wake.

CHOLERA IN FOWLS—From Cherokee and Wake.

DIPHThERIA—From Cabarrus, Perquimans, Randolph and Wake.

ERYSIPELAS—From Cherokee.

INFLUENZA—From Warren.

MALARIAL FEVER.—From Alexander, Caswell, Catawba, Chowan, Forsyth, Granville, Lincoln, Orange, Pasquotank, Pitt, Sampson, Wake, Washington and Yadkin—14 counties.

MALARIAL FEVER, HEMORRHAGIC—From Catawba.

MEASLES—From Beaufort, Brunswick, Cabarrus, Columbus, Greene, Johnston, Northampton, Orange, Richmond, Stokes, Surry, Warren and Wayne—13 counties.

MUMPS—From Caswell, Gaston and Iredell.

PNEUMONIA—From Gaston, McDowell and Warren.

PUERPERAL SEPTICÆMIA — From Cherokee.

RÖTHELN—From Washington.

SCARLATINA—From Chatham, Randolph and Vance.

TYPHOID FEVER—From Alamance, Alexander, Beaufort, Brunswick, Cabarrus, Caldwell, Catawba, Columbus, Davidson, Gaston, Greene, Henderson, Jackson, McDowell, Macon, Pasquo-

tank, Richmond, Sampson, Surry, Union, Washington, Wilkes and Yancey—23 counties.

WHOOPIING-COUGH--From Alamance, Brunswick, Cabarrus, Caldwell, Columbus, Guilford, Lincoln, McDowell, Mitchell, New Hanover, Onslow, Orange, Person, Rockingham, Sampson, Stanly, Stokes, Union, Vance, Wake and Watauga—21 counties.

Summary of Mortuary Reports for May, 1897.

The towns whose reports are not vouched for, printed in small type, are not included.

	White.	Col'd.	Total.
Aggregate population.....	61,467	45,867	107,334
Aggregate deaths.....	59	89	148
Representing annual death rate per 1000.....	11.5	23.3	16.5

Causes of Death.

Typhoid fever	3	1	4
Malarial fever.....	0	1	1
Whooping cough.....	2	8	10
Measles.....	0	1	1
Pneumonia	1	6	7
Consumption	3	19	22
Brain diseases.....	4	6	10
Heart diseases.....	8	2	10
Neurotic diseases.....	4	2	6
Diarrhoeal diseases.....	15	9	24
All other diseases.....	18	34	52
Accident	1	0	1
	59	89	148
Deaths under 5 years.....	20	40	60
Still-born.....	4	13	17

Condition of Jails and County Homes by Counties for May, 1897.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		20 (a)					26			
Alexander		1					4			1
Alleghany.....							6			
Anson										
Ashe..... fair	fair					fair	10			
Beaufort		17					12			
Bertie..... very good	very good	12 (b)		5	6	very good	12		2	3
Bladen..... very good	very good	2				very good	4			
Brunswick							13		0	0
Buncombe . good	good	110 (c)	*	9	17	good	43	*	20	
Burke..... no change	no change	9				+	17			
Cabarrus		42 (d)	*	4	13		26	*	14	10
Caldwell.....		8	900	0	5		6	*	0	4
Camden										
Carteret.....	+	0					0			
Caswell.....	+	3					28			
Catawba.....	+	8	640				35	820		
Chatham..... good†	good†	2				good	23			
Cherokee..... good	good	6				good	4			
Chowan..... good	good	4			0	good	5		0	0
Clay.....										
Cleveland... good	good	3	1,000		2	good	15	900		5
Columbus... good	good	9	*		6	good	6	*		1
Craven										
Cumberland		14					22			
Currituck										
Dare.....		1					0			
Davidson..... good†	good†	6				good†	26			
Davie..... no change	no change	3		0	1	no change	6		1	0
Duplin.....										
Durham										
Edgecombe		20			14		23			12
Forsyth..... very good	very good	9	1,000	3	3	very good	27	*	6	8

* Space exceeds 1,000 cubic feet. +See Summary of Reports from County Superintendents.
 (a) All in House of Correction. (b) Includes 7 in House of Correction. (c) Includes 70 in House of Correction. (d) Includes 34 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	15	*			good	20	*		
Gaston	good					good				
Gates										
Graham										
Granville										
Greene	good	0				good	9	1,000	5	4
Guilford										
Halifax		6		2	4		46		14	12
Harnett										
Haywood	good	12				good	8			
Henderson	good	5				good	3			
Hertford										
Hyde										
Iredell	no change	41 (a)	550			no change	26	550		
Jackson	†	4	*	0	4	†	2	765	0	1
Johnston		6	*				13	1,000		
Jones										
Lenoir										
Lincoln		0					22	600	12	7
McDowell										
Macon	good	4	891	2	3	good	9	600	4	5
Madison	crowded	17	350	4	5		19	400	3	4
Martin	good	2	*	0	0	good	12	*	5	0
Mecklenburg										
Mitchell	†	12					6			
Montgomery	very good	1	500			very good	17	500		
Moore										
Nash										
New Hanover	crowded	33 (b)	400	11	36		27	*	24	9
Northampton	good	6	1,000	2	0	good	28	900	8	11
Onslow						good	6			
Orange	not good	4	500	4	1	fair	19	1,000	15	7
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports of County Superintendents of Health. (a) Includes 30 in House of Correction. (b) Includes 3 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	no change	3	*	0	1	no change	27	*	0	0
Pender.....	fair	0	.....	0	.....	fair	5	.....	0	1
Perquimans.....	very good	3	.....	.....	.....	very good	5	.....	.....	.....
Person.....	very good	7	.....	.....	.....	good	12	.....	9	2
Pitt.....	.....	12	*	.....	4	not good†	29	*	.....	2
Polk.....	good	2	*	1	1	.....	0	.....	.....	.....
Randolph.....	no change	2	.....	.....	.....	no change	35	.....	.....	.....
Richmond.....	fair	16	950	0	11	fair	32	*	0	12
Robeson.....	good	22 (a)	.....	.....	.....	good	14	.....	.....	.....
Rockingham..	bad	14	*	.....	.....	good	31	825	.....	.....
Rowan.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rutherford.....	.....	4	.....	.....	.....	.....	14	.....	.....	.....
Sampson.....	very good	2	.....	.....	.....	very good	23	.....	.....	.....
Stanly.....	no change	2	*	0	2	no change	9	*	0	2
Stokes.....	good	5	800	0	2	good	15	600	3	5
Surry.....	crowded	24 (b)	360	.....	4	good	25	*	.....	1
Swain.....	good	10	.....	.....	.....	good	4	.....	.....	.....
Transylvania..	good	3	*	0	0	good	3	*	0	0
Tyrrell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	.....	13	.....	.....	.....	.....	27	.....	.....	.....
Vance.....	good	8	*	0	2	good	14	*	2	2
Wake.....	good†	83 (c)	.....	.....	.....	good	62	.....	.....	.....
Warren.....	good	2	.....	0	0	good	23	.....	1	2
Washington.....	.....	4	*	0	3	.....	4	*	1	0
Watauga.....	good	3	.....	.....	.....	good	9	.....	.....	.....
Wayne.....	good	6	.....	.....	.....	good	14	.....	.....	.....
Wilkes.....	†	4	.....	.....	.....	.....	7	.....	.....	.....
Wilson.....	good	13	.....	.....	.....	good	27	.....	.....	.....
Yadkin.....	good	5	.....	0	2	fair	27	.....	0	5
Yancey.....	fair	5	600	1	4	fair	3	.....	.....	.....

* Space exceeds 1,000 cubic feet. † See Summary of Reports of County Superintendents of Health. (a) Includes 10 in House of Correction. (b) Includes 2 in House of Correction. (c) Includes 60 in House of Correction.

Mortuary Report for May, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	Deaths under 5 years.
FAYETTEVILLE..... Dr. J. V. McGougan.	White. Colored.	3,500 2,500	6,000	6.9 0.0	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32 0	32	.....
GOLDSBORO..... T. H. Bain, Sec. B. H.	White. Colored.	3,700 2,000	5,700	3.2 24.0	10.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 4	5	.....
GREENSBORO..... J. S. Michaux, City Clk	White. Colored.	5,500 2,500	8,000	8.7 28.8	15.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 6	10	.....
HENDERSON..... Dr. W. J. Judd.	White. Colored.	2,250 2,000	4,250	0.0 24.0	11.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0 4	4	.....
HILLSBORO..... Dr. D. C. Parris.	White. Colored.	400 300	700	30.0 46.0	34.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 1	2	.....
LENOIR..... Dr. A. A. Kent.	White. Colored.	800 300	1,100	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0 0	0	.....
MARION..... Dr. G. I. White.	White. Colored.	800 200	1,000	15.0 0.0	12.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 0	1	.....
MONROE..... Dr. J. M. Blair.	White. Colored.	1,800 600	2,400	13.3 0.0	10.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 0	2	.....
OXFORD..... Dr. T. L. Booth.	White. Colored.	1,500 1,000	2,500	8.0 12.0	9.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 1	2	.....
RALEIGH..... T. P. Sale, Clerk B. H.	White. Colored.	7,200 6,000	13,200	14.7 26.0	20.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9 13	22	.....
ROCKINGHAM..... Dr. W. H. Steele.	White. Colored.	1,300 450	1,750	18.5 0.0	13.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 0	2	.....
ROCKY MOUNT..... Dr. G. L. Wimberley.	White. Colored.	1,600 1,000	2,600	7.5 0.0	4.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 0	1	.....
SALEM..... F. E. Keehn, H. Off'r.	White. Colored.	3,942 342	4,284	12.2 70.2	16.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 2	6	.....
SALISBURY..... Dr. John Whitehead.	White. Colored.	4,000 1,500	5,500	9.0 16.0	10.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 2	5	.....
SCOTLAND NECK..... Mayor J. A. Perry.	White. Colored.	775 425	1,200	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0 0	0	.....
SOUTHPORT..... H. K. Ruark, City Clk.	White. Colored.	800 400	1,200	120.0 30.0	50.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 1	5	.....
Statesville..... Dr. W. J. Hill.	White. Colored.	2,500 1,000	3,500	16.0 12.0	10.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 1	4	.....
TARBORO..... Dr. L. L. Staton.	White. Colored.	1,200 1,300	2,500	10.0 0.0	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 0	1	.....
WASHINGTON..... Dr. Joshua Tayloe.	White. Colored.	3,000 2,500	5,500	16.0 19.2	17.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 4	8	.....
WELDON..... Mayor J. T. Gooch.	White. Colored.	700 750	1,450	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0 0	0	.....
WILMINGTON..... Dr. J. C. Shepard.	White. Colored.	9,000 13,000	22,000	9.3 32.3	22.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7 35	42	.....
WILSON..... Dr. N. Anderson.	White. Colored.	2,500 2,000	4,500	19.2 6.0	13.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 1	5	.....
WINSTON..... Dr. John Bynum.	White. Colored.	5,200 4,800	10,000	18.5 37.5	27.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 15	23	.....

N. B. The reporters for the cities and towns printed in large type have signed this certificate. I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MAY, 1897.

Furnished by the North Carolina Climate and Crop Service.

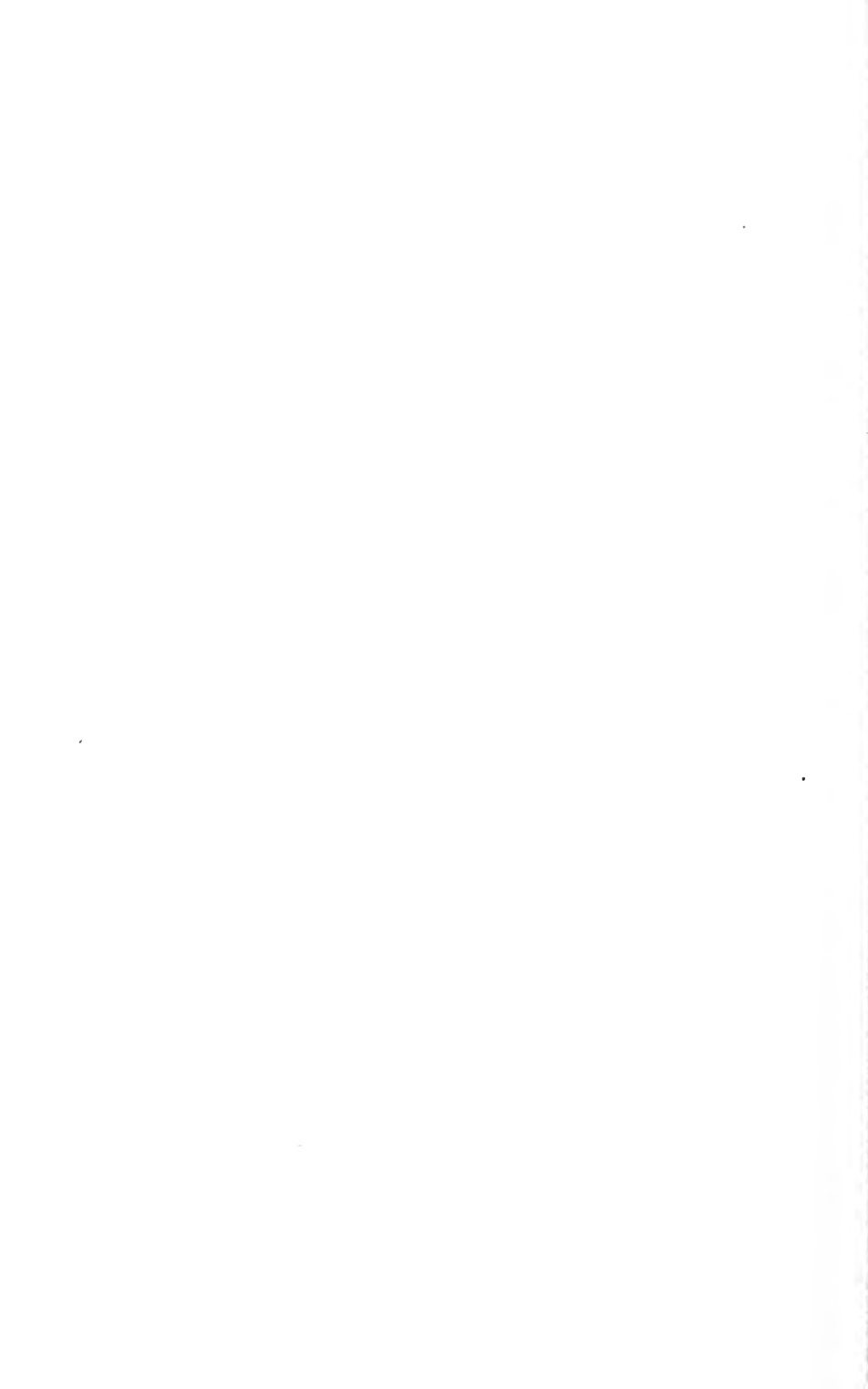
C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)								Total Precipitation. (in inches)	NO. OF DAYS.				Prevailing Wind.	
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.		Clear.	Partly Cloudy.	Cloudy.	Rainy.		
Asheville.....	59.8	84	20	72.5	35	2	47.2	49	25.3	3.59	22	9	0	11	N
Beaufort.....	67.8	82	24	75.5	50	3	60.0	32	15.5	5.27	17	3	11	9	SW
Charlotte.....	66.6	88	20	76.8	43	2	56.4	45	20.4	3.72	14	10	7	12	S
Chapel Hill.....	64.8	87	20	76.2	40	4	53.3	47	22.9	6.98	12	9	10	11	W
Edenton.....	67.3	86	24	77.9	41	4	56.7	45	21.2	6.22	11	10	10	13	SW
Henderson.....	66.1	87	7	77.7	41	4	35.5	46	23.5	3.42	17	8	6	13	S
Littleton.....	63.6	86	26	76.3	35	4	50.9	51	25.4	4.46	11	9	11	9	SW
Louisburg.....	66.3	87	21	77.6	39	4	55.0	48	22.6	4.05	.....	.....	.....	9	.....
Lenoir.....	63.1	80	20	71.9	41	2	56.4	39	15.5	2.70	14	11	6	5	SW
Monroe.....	65.2	88	29	77.2	42	18	53.2	46	24.0	3.63	19	5	7	9	SW
Morganton.....	64.6	87	20	77.0	38	27	52.1	49	24.9	1.97	.....	.....	.....	5	.....
Mt. Airy.....	61.4	84	26	73.7	37	4	49.1	47	24.6	3.89	8	15	8	11	SW
Moncure.....	65.2	85	24	77.9	40	4	52.5	45	25.4	3.15	15	12	3	7	NW
New Bern.....	68.2	86	30	76.2	52	28	50.2	34	16.0	2.68	6	19	6	7	.....
Oak Ridge.....	63.6	85	7	74.5	39	4	52.7	46	21.8	5.53	19	4	8	13	W
Pittsboro.....	64.0	83	21	74.5	39	4	53.4	44	21.1	5.09	17	10	4	9	SW
Raleigh.....	66.0	86	21	76.4	44	4	56.0	42	20.4	2.85	10	12	9	12	N
Roxboro.....	63.2	85	20	75.5	36	4	50.9	49	24.6	4.61	12	4	15	11	.....
Rockingham.....	68.5	92	29	80.5	46	18	56.5	46	24.0	2.40	20	6	5	6	W
Southport.....	68.0	82	29	76.8	46	6	59.5	36	17.3	3.11	8	16	7	6	SW
Salisbury.....	66.6	89	7	78.8	42	2	54.3	47	24.5	4.73	.....	.....	.....	7	.....
Selma.....	66.4	89	24	75.0	40	5	54.7	49	23.3	3.27	18	4	9	7	.....
Saxon.....	64.6	89	21	77.6	32	4	51.6	57	26.0	6.96	9	10	12	11	NW
Tarboro.....	66.2	90	24	80.1	37	4	52.2	53	27.9	3.46	15	11	5	10	S
Weldon.....	64.8	86	21	76.5	38	4	53.2	48	23.3	2.89	13	13	5	11	S
Wilmington.....	68.4	89	29	76.9	49	6	60.0	40	16.9	2.49	14	15	2	7	S

State Meteorological Summary for May, 1897.

Mean barometer 30.02 inches; normal for May 30.04. Highest 30.37 on the 8th at Hatteras. Lowest 29.54 on the 1st at Raleigh. Mean temperature 64.6 degrees; normal for May 67.0. Highest temperature 92 on the 24th at Goldsboro and other points. Lowest temperature 28 on the 2d at Highlands. Average rainfall 3.73 inches; normal for May 4.25 inches. Greatest monthly rainfall was 6.98 inches at Chapel Hill; least monthly rainfall was .39 inches at Waynesville. Average number of clear days 14; partly cloudy 10; cloudy 7; rainy 9. Prevailing wind direction Southwest. Average hourly velocity 8.8 miles. Normal direction for May Southwest; normal velocity 7.8 miles per hour.





BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
 S. WESTRAY BATTLE, M. D., Asheville
 W. H. HARRELL, M. D., Williamston.
 JOHN WHITEHEAD, M. D., Salisbury.

C. J. O'HAGAN, M. D., Greenville.
 J. D. SPICER, M. D., Goldsboro.
 J. L. NICHOLSON, M. D., Richlands.
 A. W. SHAFFER, SAN ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XII.

JULY, 1897.

No. 4.

The Bulletin.

As intimated in our last issue, a change in the make-up of the BULLETIN is inaugurated with this number. The object of the change is to make it more popular in character, giving more reading matter and fewer statistics. It is not intended, however, to do away with the collection of statistics, and county superintendents are requested to take notice that they are expected to make as full reports as heretofore. They will be tabulated and published in the Biennial Report.

Comments on Monthly Reports of County Superintendents of Health for June.

In lieu of the more or less full report of each superintendent heretofore printed, we have thought it well, instead of omitting them altogether, to call attention to and comment upon such matters reported as deserve special notice.

The condition of the county jails, in the State, some years ago, was, in too many instances, a reproach to the local authorities, but we are happy to say that, owing, we believe, to the efforts of the Board of Health, and to the Board of Public Charities, a great change for the better has

been effected, until now the abuses are few. For the month of June there was only one report of unsanitary conditions in the jail, of a general character, although the amount of air-space provided for each prisoner was, in two others, entirely too small. In both instances the over-crowding was probably due to the presence of United States prisoners—the presence of whom, doubtless, was not taken into account in the planning of the buildings—but the over-crowding is none the less to be deprecated on that account. Fortunately, at this season of the year, it does not practically make so much difference; all the windows can be left open, but this over-crowding frequently occurs in winter, when it is a much more serious matter and should be corrected. The remedy, it seems to us, is a very simple one, and one, too, that would be of positive benefit to the county, and that is: Put the prisoners to work on the public roads, as is already the case in many counties. To show how this plan works, we quote the report for last month from Randolph county. Says Superintendent Ferree: "The jail business in this county is rather unprofitable, as most of the inmates or prisoners are on the public roads. The jailer resigned his

position some time ago." In this connection, while it may not be entirely germane, we cannot refrain from giving our readers, upon the authority of one of its most prominent and substantial citizens, an account of the method pursued in Lenoir county, which, so far as we are informed, is unique in the annals of penology. In that county the prisoners, except those guilty of the more serious crimes, are all kept upon the roads. While they are required to do an honest day's work, under the direction of an overseer, they are treated kindly, are well fed and clothed, are given a plug of tobacco, and twenty-five cents for washing, a week, and are allowed to stop work Saturday afternoon at 4 o'clock, go home and spend Sunday with their friends, reporting at 7 o'clock Monday morning. In several years only one attempt to escape had been made—by a white man, sentenced for two years, but he was recaptured and sent to the penitentiary. In our last conversation with the gentleman referred to, he told us of the astonishment of a deputy-sheriff who had brought, one Saturday, from an adjoining county, several convicts that had been loaned to Lenoir, securely manacled, when the Chairman of the Board of County Commissioners, to whom he delivered them, said to him, "Take off their handcuffs," and then to the prisoners: "Now boys, you go home, wash yourselves, put on clean cloths, and be back here bright and early Monday morning ready for work." And the last one of them reported for duty. Work on the public roads is the solution of the problem.

It is somewhat interesting to note that, during June, malarial diseases, according to the reports, were relatively more prevalent in the middle or rolling, than in the eastern or flat section of the State, even one of the mountain counties, Cherokee, reporting a few cases. Some of the results of our crusade, two years ago, against the

drinking of surface water from shallow, open wells, as a cause of malarial diseases, is gratifying, as shown by the report from Columbus county. It is to this effect: "The county is unusually free from fever. In the lower part of the county artesian wells are being sunk all over the county, and the health of every community using the water has materially improved."

Since our last issue we have received the appended circular letter which explains itself. While we are quite an admirer of the *News and Courier*, having been most favorably impressed by its efforts to advance the cause of sanitation, and gratified by the many kind words it has had for our Board, we must confess that it did not "tote fair" with our charming and beautiful city of Asheville in this instance. We do not believe that the Editor would have deliberately done injustice to anybody, man or town, and so in the spirit of charity we will assume that he was awfully dyspeptic that day.

ASHEVILLE, N. C., July 6, '97.

DEAR DOCTOR:

You have no doubt noticed an unfavorable report on Asheville's water supply, published in the *Charleston News and Courier* on May 28th, 1897, containing a garbled report from the North Carolina Board of Health report for 1896. The water on which this report was made, by the confession of the State Board Analyst, arrived in an unfit condition for analysis owing to the melting of the surrounding ice in transit, and yet the *News and Courier*, knowing this fact, and with a later favorable report before it, undertook in its editorial columns to damage the reputation of our town as a summer resort and to warn summer tourists against the danger of a residence here.

The Health Board of our city, being convinced of the superior quality of our

water supply, not only by abundant clinical experience every summer with children and adults, who come here for health and recreation, and uniformly benefit by their stay, but also from the fact that its source is a clear mountain stream, several miles above town, determined to have an analysis made by a man of such national repute in his line as could leave no room for doubt about the thoroughness of the work.

Prof. A. C. Abbott, of the University of Pennsylvania, being selected, the water was carefully collected, according to his directions, and sent to him, packed in ice to prevent multiplication of germ-life in transit, thus avoiding the error of the first analysis.

The report of Dr. Abbott we take pleasure in now calling to your attention, feeling sure that no more complete indication of the purity and excellence of our water could be demanded.

M. H. FLETCHER,
CHAS. L. MINOR,
C. V. REYNOLDS,

Committee of Board of Health.

I certify that the two samples of the Asheville city water, the analysis of which, by Prof. A. C. Abbott, is herewith appended, were collected by me directly from taps on the city water-mains, on June 24, 1897, the water passing directly from the tap into the container, and being at once sealed and packed in ice and forwarded to Professor Abbott; and the appearance of said sample of water was in no wise different from that ordinarily drawn from the city mains.

CHAS. L. MINOR, M. D.

July 1, 1897.

NORTH CAROLINA,
BUNCOMBE COUNTY.

Personally appeared before me, J. E. Gudger, a Notary Public in and for the

county of Buncombe, State of North Carolina, Dr. Charles L. Minor, personally known to me, who maketh oath that the foregoing certificate is true. Witness my hand and notarial seal, this first (1st) day of July, 1897.

J. E. GUDGER, *Notary Public.*

LABORATORY OF HYGIENE,

UNIVERSITY OF PENNSYLVANIA,

PHILADELPHIA, June 28, 1897.

Report of chemical analysis of a sample of water from Asheville, N. C., collected June —, 1897, by Dr. Charles L. Minor, and received June 25, 1897:

Condition of container... good condition
Condition of sample... good condition
Color... colorless
Odor and taste... odorless and tasteless
Reaction... neutral

*Parts
per million.*

Total solid.....	60
Chlorine	2
Nitrogen as nitrates.....	0691
Nitrogen as nitrites.....	—
Nitrogen free ammonia.....	0016
Nitrogen albuminoid ammonia..	0295
Organic matter.....	9574

Indications: Chemically, this is a "pure" water, according to the classification of Dr. Chaumont. The result of the bacteriological examination—191 bacteria per cubic centimeter—is also exceptionally good for domestic water supply. Altogether, we consider the result of the examination to be indicative of a very satisfactory water.

A. C. ABBOTT,

Per D. H. B.

Cycling From the Standpoint of Health.

Another note of warning has been sounded in regard to the possible evils of cycling. Under the somewhat ambiguous title of "The Hidden Dangers of Cycling," an alarmist article recently appeared in the *National Review*, pointing out some of the risks of injury to health to

which bicyclists are liable, and darkly hinting at others likely to be incurred. The chief novelty of the article, lies, however, in its suggestion as to cause. The author, Dr. Shadwell, has written on the subject at various times, so that his views carry a certain amount of weight. To him also belongs the distinction of originating the term "bicycle face," which has been so generally adopted to express the anxious, strained look many bicyclists wear. The hidden dangers of the exercise, in the opinion of Dr. Shadwell, threaten women, and more particularly young women, and the prediction is made that, in the course of a year or two, quite a different story will be heard concerning the health-giving properties of cycling. Dr. Shadwell says: "Sufficient time has not elapsed since it became a general practice to bring the disadvantages to light—to the light, that is to say, of public recognition. Medical men have been kept studiously in the dark on the subject. They always are in like cases. The successes are blazoned forth, the failures concealed. So with bicycling. The fortunate persons who have derived benefit, as well as pleasure, from it volubly recount their experiences to the largest audience they can command, and the chorus of praise waxes louder by reiteration. Those who have suffered, conceal the fact as far as possible, and especially from the doctor, for fear of being forbidden their beloved 'bikes.' That is noticeably the habit of young women, who are the chief sufferers."

A few cases of serious breakdown that came under the author's notice are cited, one of a girl who developed exophthalmic goitre as the result of a long ride, and which became chronic. Appendicitis and internal inflammation are also laid to the charge of the wheel. But the complaints to which the writer in the *National Review* chiefly wishes to draw attention, are the various forms of ill-defined nervous

effects resulting from even a moderate use of the bicycle. The contention is made that the harmfulness of the exercise does not consist so much in excess as in the strain on the nervous system. The proposition is laid down, that over-exertion is quite inadequate to explain the effects from which many cyclists suffer. The symptoms are essentially nervous, and point to a cerebral and not a muscular origin. The theory brought forward as to the cause, is not the saddle, the vibration, or mechanical defects of the machine, but its instability, and the constant strain required to keep it in an upright position. Dr. Shadwell holds that this incessant tension is that which tells upon the nerves.

The arguments introduced in this article are not sufficiently definite, however, to be of use in drawing any conclusions. Taking into consideration the immense number of persons who nowadays ride a wheel, it would be remarkable if among the number there were not some whom cycling did not harm, and some to whom it was decidedly harmful. Unless statistics can be given, clearly showing that to a fair proportion of riders the exercise is pernicious, a vague statement of hidden dangers will deter but few. That the nervous system is affected by the exercise is perfectly true, but here again the question of constitution and temperament comes in. Some can ride and experience no nerve trouble; some suffer slightly, while there are others to whom continued riding means a complete shattering of the nervous system. The anti-cycling idiosyncrasy does exist, but those with whom it is present must be aware of it, and, if wise, will use corresponding caution. The question of harm, resulting from nervous tension, has been greatly exaggerated; cases of complete or even partial breakdown from this cause, are comparatively rare, probably fewer than in the old cycling days. In bicycles, as they are made now, with better saddle-

springs and the pneumatic tire, vibration has been reduced to a minimum, and the tremulousness that used to exist after riding one of the earlier machines has practically ceased to occur. It should not be forgotten that the effect of bicycle exercise on health has already been very fairly tested as regards men. In England, cycling has been in vogue for twenty-five years; ten years ago there were thousands of riders in that country, and if the consequences had been as disastrous as its opponents endeavor to prove they must be, the truth would have been brought to light ere this.

Various theories have been advanced to account for cycling affecting the nervous system in the way it does, but none of these explanations is quite satisfactory. That it lies wholly in the action of balancing is certainly not the case. Naturally, with an unpractised rider, the effort to keep in an upright position will produce considerable nerve tension; on the other hand, to the expert, balancing has become as automatic an action as walking or running, and the strain will be infinitesimal. Riding in crowded streets, on a rough road, down a steep hill, or under any circumstances when the senses of sight, touch, and hearing must be continually on the alert, would seem more likely to have a harmful effect than the act of keeping the equilibrium to one who is a master of the machine. Cycling with women has not yet received the test it has undergone with men, but the time has been long enough to prove that, on the whole, the exercise is decidedly good for them, and the boggy of hidden dangers need spread no alarm among their ranks. A woman organically sound can, under proper conditions and using ordinary precautions, cycle with as little dread of bad results as a man, and, so long as she keeps strictly within the

limits of her endurance, for pleasure and health, and not for emulation, it will certainly benefit. Long rides and century runs can do no good, and probably may do harm. Hill-climbing should be avoided as much as possible, as it puts too great a stress on the large abdominal muscles, and a woman, with her physiological peculiarities, should not submit herself to an undue strain. In the case of anaemic girls, cycling usually acts like a charm. The general tonic effect of an out-door life, and the change of thought and scene, have an invigorating action on the entire system, and all the organs of the body participate in this beneficial result.

The fact that there are dangers connected with cycling cannot be denied; these, however, are not hidden ones, but are more or less palpable to every observer. It may be said that there is danger in teaching the practice to the quite young. Properly, cycling should not be carried on to any extent while the body is undergoing development. Any valvular disease should be an absolute bar to cycling, as the heart is the organ principally exercised. Acute inflammation of the genital organs should forbid the use of the machine to women, although the exercise is often beneficial in chronic cases of uterine disease. The question finally resolves itself into one of moderation or excess, and the personal equation in this respect is variable. A healthy man may be able to do one hundred or one hundred and fifty miles without exerting himself, while another, to all appearances equally as healthy, should not do more than forty or fifty. Cyclists are too apt to be carried away by the spirit of emulation, and when they do so with riders of a superior capacity, they must expect to suffer. Each cyclist should be a judge of his or her own capacity.—*Medical Record*.

The Bubonic Plague Bacillus as Studied at the Pasteur Institute.

(Report to Surgeon-General U. S. Marine Hospital Service.)

77-79 RUE NOTRE DAME DES CHAMPS.

Paris, France, June 14, 1897.

SIR: I have the honor to submit the following for your consideration, concerning the epidemic of plague in Bombay and Kerachi, most of the information being derived from the reports of Dr. Verzin to the Institute Pasteur, and imparted by Professor Roux in an address delivered at the weekly reunion of the workers at the institute:

Mortality.—From the most reliable information collected from all sources, it would seem that the average mortality in this epidemic in India has reached the appalling figure of 90 to 95 per cent. of those attacked. This is open to some doubt, as the Hindoos have displayed an aversion to treatment in hospitals, and compulsory removal to these institutions having been adopted as a rule, many cases occurring among the native population have been concealed, and do not appear in the total of cases or deaths. The mortality as reported is, therefore, probably rather below than above the truth. It will also be understood that these figures do not include those subjected to serum therapy, of which special mention will be made in another portion of this summary.

Types of the disease.—For convenience of classification, and in accordance with the clinical symptoms presented, the disease in this epidemic has been classified as (a) bubonic, or ganglionic; (b) septicæmic; (c) pneumonic. Of these forms the bubonic has been the most common; the pneumonic the most fatal. The method of infection, that is to say the point of entrance of the specific microbe, is a point still under active discussion, and is different not only for the various types and forms given, but also varies in

different countries and in different sections of the same country. For example, in Hongkong, where the natives as a rule go barefooted, infection in a large number of cases has been traced to abrasions and wounds of the lower extremities; in India, some covering or protection for the foot is usually worn, but the natives suffer from the bites of insects and vermin, consequently the point of entrance of the infection has been largely upon the hands and arms. Infection through the intestinal or respiratory tract, while admitted, is as yet largely unexplained, for, in spite of the assertions of Wilm, some breach of continuity would seem to be necessary for the entrance of the micro-organism. As a rule, a small red spot marks the point of infection; this becomes successively a vesicle and a pustule and in the ganglionic form, and in a large proportion of cases a general redness or a series of vesicles marks the passage of the infection along a lymphatic tract or channel. These vesicles have been of very frequent occurrence in the Bombay epidemic.

Symptoms and course.—In the bubonic form the victim is seized with a chill, followed by a fever of greater or less intensity, sometimes reaching 41° to 42° C.; there is an overwhelming prostration; nausea and vomiting and the rapid formation of a glandular enlargement, surrounded by an extensive cedema, forming the bubo which has given the most common name to the disease. The bubo may or may not break down and go on to suppuration. If it does the ganglionic form merges into the septicæmic, without any distinct line of demarkation between the two types. Early in the disease stupor, delirium, and a more or less profound unconsciousness mark the existence of an intoxication or general systemic infection.

In the septicæmic form it would seem that the infection has taken place through

the intestinal, digestive, or respiratory passages, or has been secondary to the suppuration of a bubo. These cases are as a rule not as violent in their course as the other types, and furnish the larger portion of the small number of recoveries. The pneumonic form is at once the most insidious in its onset, the most difficult of diagnosis, and the most fatal in its results. It is usually ushered in by a pain in the side, which becomes more pronounced as the disease progresses; the respiration becomes difficult and embarrassed, and there is cough with a tenacious, dark colored, or bloody expectoration. It is through the examination of this expectoration that the diagnosis is most easily made, as, spread upon a slide, stained and examined under the microscope, the presence of the plague bacillus in large numbers is at once established. The bacillus is not in pure culture, but is accompanied by diplococci, staphylococci, and streptococci, and in making the diagnosis by this method the property of the plague bacillus of completely decolorizing by the method of Gram must be borne in mind.

Post-mortem, the pneumonia is found to be generally lobular or disseminated in character, though it is sometimes lobar, sometimes involves a whole lung, or may indeed involve both lungs.

The general characteristic of the lesions of plague is a tendency to hemorrhages, either into the parenchyma of the spleen or kidneys, the subdural and arachnoid spaces, the spinal cord, or into the loose connective tissue of various regions of the body.

This tendency to hemorrhages would seem to be a manifestation of the peculiar properties of the toxins formed by the plague bacillus in the process of growth, as it has been observed alike in animals subjected to inoculations with the culture of the bacillus and its isolated toxins.

Among the sequelæ of the plague may be mentioned, as most frequent, long continued suppuration of glands, boils, and carbuncles, and eruptive diseases of the skin, and paralyzes, sometimes of a particular set of muscles, sometimes of the lower and sometimes of the upper extremities. These manifestations may persist, or the affected muscles may gradually acquire strength and tone. These manifestations may be accounted for as to the suppurations by the fact that the plague bacillus is usually accompanied by the organisms of suppuration; as to the paralyzes by the above-mentioned tendency to hemorrhages into the meninges and spinal cord.

Viability of the plague bacillus.—It would seem that the bacillus of plague, while not as sensitive to desiccation as the cholera spirillum, still loses its virulence by drying, and that to retain its virulence it requires the action of both heat and moisture. In ordinary water it will retain its activity for some time, but its existence in sterilized water seems to be limited to a period of from twenty-four to forty-eight hours. The presence of organic matter, animal or vegetable, and in a state of decomposition, would seem to furnish the most favorable nidus for its growth, which will account for its more or less prolonged existence in Oriental countries, and the comparative rarity of its appearance in Europe since the existence of modern and improved hygienic conditions. This does not mean, however, as was maintained by some at the Venice conference, that filth and crowding are alone responsible for the disease. The malady is pre-eminently of bacterial origin, and wherever the microbe is found, there the plague is likely to develop.

Serum therapy and preventive inoculation.—This branch of the subject I approach with considerable reluctance, for the reason that the serum therapy has not

in the Bombay epidemic given results as brilliant as were hoped for from the eminently successful experiments made upon a very small scale by Yersin in the epidemic at Hongkong. For this there are good and sufficient reasons, well understood by those best acquainted with the manufacture and preparation of the antipest serum. The figures will first be given, and explanations entered into afterwards. In the Bombay epidemic there have been used serums from two sources, the one prepared by Yersin at the Pasteur Institute at Saigon, the other prepared at the Pasteur Institute at Paris, and forwarded to Yersin at Bombay. With the former serum, the mortality of all cases treated amounted to 33 per cent.; with the latter, the mortality has been approximately 50 per cent. The total mortality of all cases in which the serum therapy was inaugurated prior to the systematic intoxication—that is to say, on the first or second day of the disease—is 12 per cent.

Compared with the mortality without the serum treatment, 90 to 95 per cent., there is nothing to be ashamed of even in these figures, but it is not the result that was hoped for. As a prophylactic measure the results have been much more favorable. It has proved in this respect eminently successful, but a point involved in some doubt is the length of the immunity conferred. In one case the disease manifested itself in a person constantly exposed forty-two days after the preventive inoculation. This would point to a desirability of inoculations for those exposed, as physicians and attendants, at intervals not exceeding thirty to thirty-five days.

Fortunately we are able to cite cases where the inoculation was instrumental in preventing the disease, and this, I think, should establish the principle that in future epidemics it will be just as rational and scientific to practice preventive inoculation as it is now customary to vaccinate

those exposed to an infection of small-pox, with a view of preventing the spread of the disease.

I would beg to relate the following incident: The Bombay manager of the local branch of the Credit Lyonnaise resided with his wife, children, and a numerous retinue of native servants in a dwelling in an infected portion of the city. His little daughter was stricken with the pest in a virulent form; was treated with the serum, and made a rapid and uneventful recovery. As a precautionary measure, the whole family were subjected to inoculation, and the same measure of treatment was offered to the native domestics. Some accepted and escaped infection, while six who declined on the ground of religious scruples, were all stricken, and five died. It seems that a more crucial test could not have been devised, or a more triumphant vindication obtained.

I will endeavor now to briefly explain why the therapeutic results obtained have not been more brilliant, and the success more uniform.

In the first place, the epidemic has been largely confined to the natives, a class notoriously suspicious and superstitious. It has been only with the greatest difficulty that they have been persuaded to accept the protective inoculation, and when stricken with the pest, their religious scruples have often led them to decline the serum therapy until almost moribund. These cases have, of course, only served to reduce the ratio of recoveries to treatments, and to bring the method into disrepute among those prone to criticize and sneer, of whom unfortunately there have been too many in high places during this epidemic.

Secondly, to be perfectly frank, the fault has been in the serum itself, as can thus be explained: The serum prepared by Yersin at Saigon had not only a strong immunizing power, but also very high

antitoxic or curative power, as is conclusively proved by the results in his twenty-three cases treated at Hongkong. Unfortunately, the supply was small; Yersin departed for Bombay and an unfortunate accident in his laboratory prevented the continuance of this supply, and the further treatment and preparation of his already immunized and seasoned horses. Recourse, therefore, had to be had to serum prepared in the Pasteur Institute in Paris. A large demand had not been anticipated here, and the supply on hand was also small, but in the belief that even a weak serum was better than none, there was issued to Dr. Yersin a quantity of serum which was known to have a high immunizing, but a comparatively low, antitoxic or curative power. This is, in brief, the whole explanation. Every nerve is being strained to produce a stronger serum, but it is a matter which, in the very nature of things, takes a long time, and with a demand constantly exceeding the supply, it is impossible at this time to do better, though, if only sufficient time is allowed, there is no shadow of a doubt that a product will be reached, whose potency will be a perfect vindication of the faith of such men as Professor Roux and his assistants. The technical reason in brief is the following: If a horse is injected intra-peritoneally with a culture of the plague bacillus, killed by exposure to heat, the animal in time acquires a certain immunity to these injections, and his serum is found to have certain preventive properties, viz.: it will protect an animal into which it is injected against a culture of the plague bacillus; in other words, it is preventive or prophylactic. This result has been arrived at by the action of the toxins contained in the killed culture, but it is to be borne in mind that the toxine is not in a soluble condition, but it is largely held enveloped in the bodies of the dead microbes. On the

contrary, if the horse is injected with a live culture of plague, or a soluble toxine, and intravenously instead of intra-peritoneally, an immunity will be established, and the serum of the animal will be found to have not only an immunizing power as before, but in addition an antitoxic or curative power—that is to say, it will protect an animal against the toxins of plague, or, the animal having been inoculated with plague, it will exert its curative or antitoxic influence. The difference is one of degree and not of kind. Every antitoxic serum is immunizing to a high degree, but the reverse does not hold good. It can therefore be laid down as a general rule that to prepare an immunizing serum the injection of killed culture or enveloped toxine is sufficient, while, to prepare an antitoxic one, either the culture must be living, or the toxins in a soluble form and injected into a vein. Hence the difficulty. It is a most complex problem to dissolve the cellulose envelope of the microbe, and set free its toxine without producing a chemical change in the product, and the matter is under continual experiment. That it will be solved eventually there is no doubt, but in the meantime the horses have to be treated with live culture, and the process is one requiring great caution and care, as accidents not infrequently happen, and the treatment of the horse has to be suspended. It will thus be seen that the whole matter is one involved in a great deal of difficulty, and requiring much earnest thought and work for its solution.

Nevertheless, I do not think it possible at this time to overrate the importance of the study of the toxins and antitoxines of the infectious and contagious diseases, as, to my mind, upon its development rests the whole future of preventive medicine. The study is at once fascinating and discouraging, for new difficulties constantly arise to take the place of those

which have been overcome by laborious effort.

I have the honor, sir, to remain, very respectfully, yours,

H. D. GEDDINGS,

Passed Assistant Surgeon.

U. S. M. H. S.

—Public Health Report, U. S. M. H. S.

Review of Diseases for June, 1897. (Eighty Counties Reporting.)

Eighty-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious disease to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence, in the county, is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

MEASLES.—Brunswick, 11; Cabarrus, 4; Cumberland, 3; Greene, 12; Halifax, 30; Hertford, 4; Johnston, 1; New Hanover, 1; Northampton, many; Orange, epidemic; Pasquotank, 10; Vance, a few; Wayne, 20; Washington, 10; Wilson, 1—14 counties.

WHOOPING COUGH.—Alamance, several; Bladen, a few; Brunswick, 18; Cabarrus, 21; Carteret, 50; Catawba, a large number; Columbus, epidemic; Cumberland, 3; Davidson, 4; Guilford, many; Hertford; Mitchell; Northampton, many; Onslow, 20; Pasquotank, 2; Perquimans, 8; Person; Rockingham, 8; Rowan, 2; Stokes, 27; Union, 20—40; Vance; Wake, 4; Watauga, 50; Yadkin, a few—25 counties.

SCARLATINA.—Wake, 1.

DIPHTHERIA.—Guilford, 1; Perquimans, 1; Rockingham, 1; Wake, 1.

TYPHOID FEVER.—Alamance, several; Alexander, 4; Beaufort, 4; Burke, 5; Cabarrus, 8; Caldwell, 15; Catawba, 5; Chowan, a few; Clay, 3; Cumberland, 2; Davidson, 12; Durham, 1; Franklin, several; Gaston, in nearly all parts; Greene, 2; Guilford, 4; Henderson, 3; Hertford, 2; Jackson, 10; Lincoln, 4; McDowell; Martin, 3; Nash; New Hanover, 9; Northampton, 5; Orange; Pasquotank, 1; Perquimans, 4; Pitt, 1; Richmond, 3; Rockingham, 3; Rowan, 4; Sampson, a few; Stanly, 10; Stokes, 7; Surry, 2; Swain, 2; Union; Vance; Wake, 4; Warren, 1; Watauga, 1; Wayne, 10; Wilkes, in nearly all parts; Yadkin, several; Vancey—46 counties.

MALARIAL FEVER.—Alexander; Bertie; Bladen, a few; Cabarrus, in all parts; Catawba; Chatham; Cherokee, a few; Davie; Durham, in all parts; Gaston; Granville, in all parts; Greene, in all parts; Guilford; Hertford; Lincoln, in all parts; Nash; New Hanover, in all parts; Orange, in all parts; Pender; Perquimans, in all parts; Person; Pitt; Richmond; Sampson; Union; Vance; Wake; Warren; Wayne; Wilson, a few; Yadkin, along certain creeks—32 counties.

PERNICIOUS MALARIAL FEVER.—Catawba, 1; Hertford, 1.

HEMORRHAGIC MALARIAL FEVER.—Catawba, 2.

DIARRHEAL DISEASES.—Alleghany, in all parts; Ashe; Burke, to a limited extent; Carteret; Cherokee; Chowan, in all parts; Clay, a few; Cumberland, in all parts; Forsythe; Greene, in all parts; Halifax; Haywood, in all parts; Macon; Madison; Martin, in all parts; Montgomery, in all parts; New Hanover, in all parts; Onslow, in all parts; Orange, in all parts; Pitt; Richmond; Rockingham, in all parts; Rutherford, a few; Sampson; Stanly; Swain, in all parts; Union; Vance; Wake; Washington, in all parts; Wilson, a few; Vancey—32 counties.

CHOLERA IN CHICKENS.—Cabarrus, Orange, Perquimans.

CHOLERA IN HOGS.—Chowan, Columbus; Onslow, Pasquotank, Washington.

DISTEMPER IN HORSES.—Cabarrus.

MURRAIN IN CATTLE.—Jackson.

The following counties report that there are no diseases worth mentioning: Buncombe, Caswell, Cleveland, Dare, Edgecombe, Polk and Transylvania.

No reports have been received from the Superintendents of Health of Anson, Craven, Fredell, Lenoir, Mecklenburg and Moore.

Summary of the Mortuary Reports for June, 1897. (Twenty-two Towns).

Only the towns from which certified reports are received are included:

	<i>White, Col'd, Total.</i>		
Aggregate population	62,917	46,417	109,334
Aggregate deaths...	73	87	160
Representing annual death rate per 1,000	12.9	22.5	17.6

<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever ..	4	5	9
Malarial fever ..	0	4	4
Whooping-cough ..	2	6	8
Measles ..	1	2	3
Pneumonia ..	1	3	4
Consumption ..	4	8	12
Brain diseases ..	4	3	7
Heart diseases ..	5	4	9
Neurotic diseases ..	2	0	2
Diarrhoeal diseases ..	26	18	44
All other diseases ..	24	32	56
Accident.....	0	2	2
	<hr/> 73	<hr/> 87	<hr/> 160
Deaths under five years ..	29	36	65
Still-born ..	7	16	23

Mortuary Report for June, 1897.

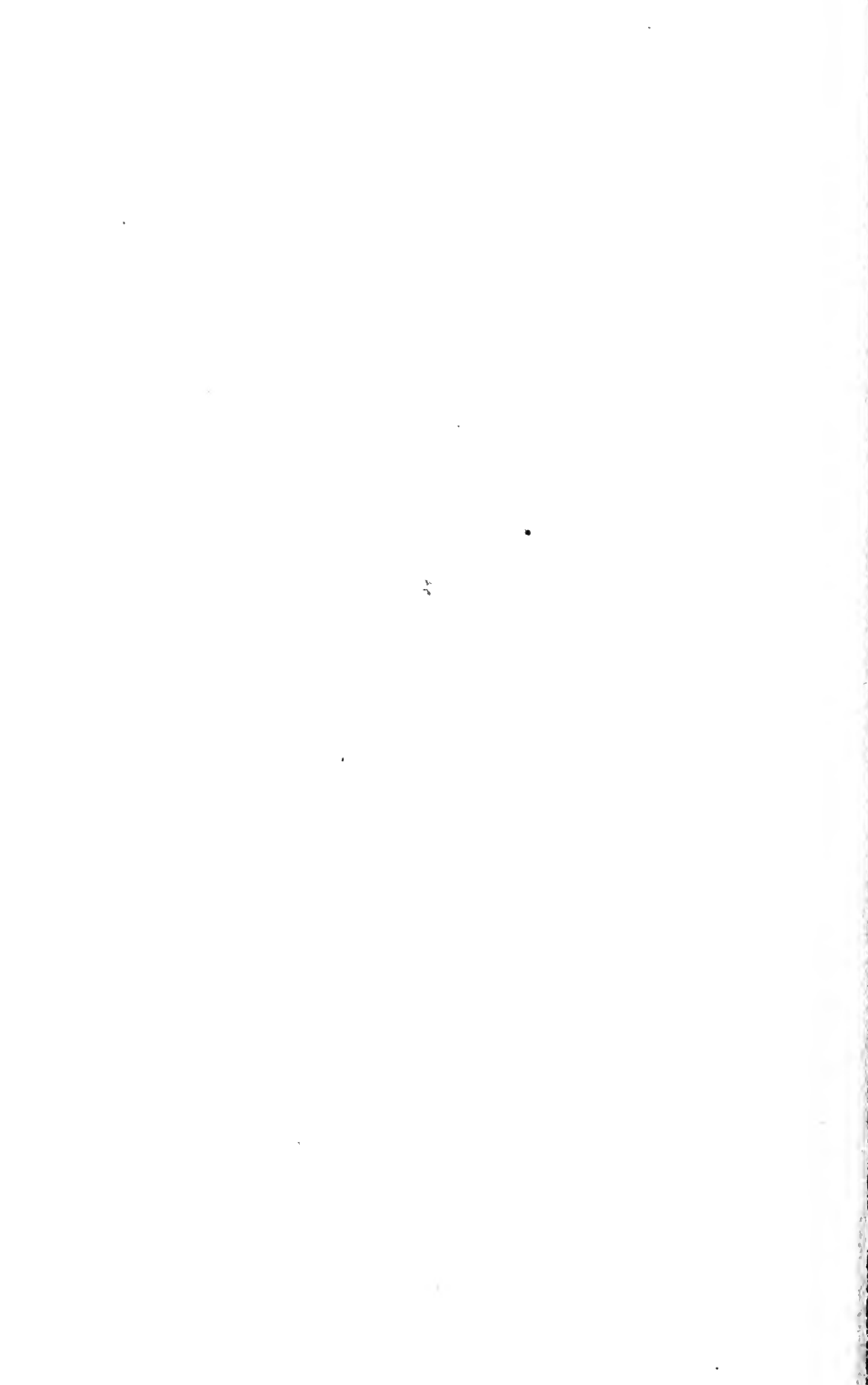
TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	Deaths Under 5 Years.
Asheville.....	W.	8,000	13,000	12.0																		8		
Dr. E. C. Starnes.	C.	5,000		0.0	7.4																	0	8	
Durham.....	W.	4,000	12.0																			4		
Dr. J. M. Manning.	C.	2,000	6,000	12.0	12.0																	2	6	
FAYETTEVILLE.....	W.	3,500	6.8																			2		2
Dr. J. V. McGougan.	C.	2,500	6,000	19.2	12.0	1									1			1	1			4	6	1
GOLDSBORO.....	W.	3,600	3.3																			1	7	2
T. H. Baldwin, Sec. B. H.	C.	2,400	5,600	36.0	15.0			1									1	1				6	2	1
GREENSBORO.....	W.	5,500	4.1																			2	13	1
J. S. Michaux, City Clerk	C.	2,500	8,000	52.8	19.5	1			1			2	1				1	2				11	7	
HENDERSON.....	W.	2,250	16.0																			3	5	2
Dr. J. H. Tucker.	C.	2,000	4,250	12.0	11.1							1					2	2				2	2	1
HILLSBORO.....	W.	400	0.0																			0	1	
Dr. D. C. Parris.	C.	300	700	40.0	17.1												1					1	1	
LENOIR.....	W.	800	0.0																			0	2	
Dr. A. A. Kent.	C.	300	1,100	80.0	21.8													2				2		
MARION.....	W.	750	32.0														1	1				2		
Dr. George I. White.	C.	250	1,000	0.0	21.0																	0	2	
MONROE.....	W.	1,800	13.3														1	1				2	3	
Dr. J. M. Blair.	C.	600	2,400	20.0	15.0			1														1		
OXFORD.....	W.	1,500	16.0										1					1				2	4	
Dr. T. L. Booth.	C.	1,000	2,500	24.0	19.2							1										2		1
RALEIGH.....	W.	8,000	9.0						1								2	2	1			6	11	4
F. P. Sale, City Clerk B. H.	C.	7,000	8.6		8.8								1				1	2	1			5	1	4
ROCKINGHAM.....	W.	1,300	9.2																			1		
Dr. W. H. Steele	C.	450	1,750	80.0	27.1	1											1					3	4	
ROCKY MOUNT.....	W.	1,600	22.5											1	1							3	8	1
Dr. G. L. Wimberley.	C.	1,000	2,600	0.0	13.8																	0		
SALEM.....	W.	3,942	6.1														1	1				2		
Mayor S. E. Butner.	C.	342	4,284	70.2	11.2													2				2	4	1
SALISBURY.....	W.	4,000	33.0										1				5	2				11	15	7
Dr. John Whitehead.	C.	1,500	32.0		32.7	1						1					2	2				4		
SCOTLAND NECK.....	W.	775	46.4														1	2				3		2
Mayor J. A. Perry.	C.	425	1,200	28.2	40.0										1							1		
TARBORO.....	W.	1,200	10.0														1					1		
Dr. L. L. Staton.	C.	1,300	2,500	0.0	4.8																	0	1	
WARRENTON.....	W.	1,000	12.0																			1		1
Dr. G. A. Foote.	C.	500	1,500	0.0	8.0												1					0	1	
WASHINGTON.....	W.	3,000	12.0										1				1					3	7	1
Dr. Joshua Tayloe.	C.	2,500	19.2		15.3	1								1			1	1				4		2
WELDON.....	W.	700	0.0																			0		
Mayor J. T. Gooch.	C.	750	1,450	16.0	8.3														1			1		
WILMINGTON.....	W.	9,000	21.3										2				6	7				16	42	7
Dr. J. C. Shepard.	C.	13,000	21.0		22.4	2		2					3				9	10				26	11	5
WILSON.....	W.	2,500	9.6																2					
Dr. N. Anderson.	C.	2,000	4,500	6.0	8.0					1												1	3	1
WINSTON.....	W.	5,800	20.7										1				5	3				10	21	2
Dr. John Bynum.	C.	4,200	32.8		25.2	1						1					2	1				11		8

N. B.—The reporters for the cities and towns, printed in SMALL CAPITALS, have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. R. A. Freeman.	Johnston	Dr. R. J. Noble.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany	Dr. Robert Thompson.	Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	Dr. Thomas F. Costner.
Ashe	Dr. L. C. Gentry.	McDowell	Dr. George I. White.
Beaufort	Dr. Joshua Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunston.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. I. Watson.	Mecklenburg	Dr. H. M. Wikder.
Buncombe	Dr. E. C. Starnes.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. W. A. Simmons.
Cabarrus	Dr. Robert S. Young.	Moore	Dr. Gilbert McLeod.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. J. C. Shepard.
Carteret	Dr. George N. Ennett.	Northampton	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. D. McD. Yount.	Orange	Dr. D. C. Parris.
Chatham	Dr. J. B. Matthews.	Pamlico	No Board of Health.
Cherokee	Dr. J. F. Abernathy.	Pasquotank	Dr. J. E. Wood.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. O. P. Gardner.	Person	Dr. J. A. Wise.
Columbus	Dr. I. Jackson.	Pitt	Dr. Frank W. Brown.
Craven	Dr. J. W. Duguid.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGowan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. H. Steele.
Dare	Dr. W. B. Fearing.	Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John W. Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. E. B. Harris.
Durham	Dr. John M. Manning.	Sampson	Dr. John A. Stevens.
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. D. P. Whitley.
Forsyth	Dr. E. F. Strickland.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Waltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. T. L. Booth.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. J. H. Tucker.
Guilford	Dr. W. J. Richardson.	Wake	Dr. P. E. Hines.
Halifax	Dr. I. E. Green.	Warren	Dr. George A. Foote.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. G. Council.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. W. J. Jones.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. N. Anderson.
Iredell	Dr. W. J. Hill.	Yadkin	Dr. T. R. Harding.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.





BULLETIN

OF THE

North Carolina Board of Health

*Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.*GEO. G. THOMAS, M. D., *Pres.*, Wilmington.

S. WESTRAY BATTLE, M. D., Asheville.

W. H. HAPPELL, M. D., Williamston.

JOHN WHITEHEAD, M. D., Salisbury.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

C. J. O'HAGAN, M. D., Greenville.

J. D. SPICER, M. D., Goldsboro.

J. L. NICHOLSON, M. D., Richlands.

A. W. SHAFFER, SAN ENGLAND, Raleigh.

VOL. XII.

AUGUST, 1897.

No. 5.

Comments on Monthly Reports of County Superintendents of Health for July.

We sincerely regret to chronicle the death of Dr. George N. Ennett, Superintendent of Health of Carteret County. Our information having been derived from a simple announcement of the fact in the newspaper, we can give no particulars. May he rest in peace.

Dr. J. M. Turner was elected on the first Monday in the month County Superintendent of Health of Wilkes to succeed himself.

Typhoid fever is reported by ten more counties this than last month, though in many instances it is said to be mild in character. We cannot tell to what extent the law on the subject of typhoid fever has been violated, but we fear many times—through ignorance on the part of the householder, no doubt; but the attending physicians, if there be any against whom the charge would lie, have no excuse, for a copy of the law was sent to every registered practitioner in the State. But even if the law had never been enacted, the physician's responsibility would remain, for if he is competent to practice medicine he knows perfectly well that typhoid fever is spread generally by the

contamination of drinking water by the bowel discharges of a case of that disease emptied without having been thoroughly disinfected. We sincerely hope that none of our readers have been guilty of this negligence, which we think, in the light of modern medicine, could properly be denominated criminal. As the best of us are liable to become lax at times, we do not feel any apology to be necessary for printing the section bearing on the subject. It is this:

"SEC. 21. Any householder in whose family there is, to his knowledge, a person sick of cholera or typhoid fever, who shall permit the bowel discharges of such sick person to be emptied without first having disinfected them according to the instructions to be obtained from the attending physician or the county superintendent of health shall be guilty of a misdemeanor, and upon conviction shall be fined not less than two nor more than twenty-five dollars, or imprisoned not less than ten nor more than thirty days. And in cases where such undischarged discharges are emptied on the water-shed of any stream or pond furnishing the source of water supply of any public institution, city or town, the penalty shall

be a fine of not less than twenty-five nor more than fifty dollars, or imprisonment for not more than thirty days. And any physician attending a case of cholera or typhoid fever who refuses or neglects to give the proper instruction for such disinfection as soon as the diagnosis is made, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than ten nor more than fifty dollars."

In this connection we think it proper to quote the following "personal" note, and therefore the county shall be nameless on one of the reports.

"I regret to have to report typhoid fever in —, while a large and populous county near has *no cases* reported. Yet we who live near know of several deaths from that disease in said county this summer."

If this be true, and we have no reason to doubt it, knowing the reporter, it means that at least one superintendent is careless in making his reports, or, as is more likely, we hope, has a right to complain of the failure of the physicians of his county to report their cases to him. This state of things is manifestly unfair, and we trust superintendents will be careful to make as full reports as possible.

Scarlet fever, we are gratified to note, was promptly stamped out in Granville county by the faithful efforts of the superintendent enforcing a strict quarantine.

Milk sickness, that curious and interesting disease, is reported in the "heavy mountainous portions" of Cherokee.

Malarial diseases are somewhat less prevalent than in June. While more widespread in the flat country they seem to be milder in character than in the hill country, as only one case of the pernicious form is reported from the Eastern section, and five cases of the hemorrhagic from the Middle section of the State.

The following reports from Franklin and Mitchell counties, respectively, in re-

gard to improvements in their jails are encouraging: "The jail" (in Franklin) "has just undergone alterations which will add very much to the comfort of those confined therein, and enable us to practice such sanitary measures as could not be done before the alterations were made." From Mitchell: "Contract let yesterday, August 27, 1897, for the erection of a first-class jail, at a cost of \$5,300. Jail to be completed by December 1, 1897.

Pure Water versus Malaria.

(By Charles W. Dabney, Jr., Ph. D.)

Dr. Dabney made such an enviable reputation with our people when State Chemist, and has since grown so rapidly in the estimation of the whole country, that anything from his able pen will attract attention; and we are very glad to be able to lay his views on so important a subject before our readers. It is a subject very near to our heart; and, while it is essentially a repetition of the views set forth in the health pamphlet issued by the Board two years ago on "Drinking Water in its Relation to Malarial Diseases," and by other writers on the subject, it is interesting and to the point. "Line upon line, precept upon precept," etc., obtains in sanitation as in other things.—ED.

Many persons not familiar with the country have the idea that malaria is universally prevalent in the South, and that the large majority of the inhabitants of that section spend much of their time during the fall and spring in having chills. The fact is, that the South is no more subject to malaria than any other section of our country. It is only necessary to explain the cause of malaria and the conditions which promote it, to show that the people of the Southern States need not fear malaria any more than those residing in other sections.

The discovery that malarial fevers are

caused by specific micro-organisms is justly considered as one of the greatest achievements of modern science. Bacteriologists have now studied a number of these organisms, and, although their life-history has not been completely worked out, they are prepared to tell us a good deal about them. These bodies belong to the order called by zoologists protozoa, and to a group of minute organisms known as haematozoa, or parasites of the red-blood corpuscles. It is now generally agreed by advanced physicians, in all countries where these organisms have been studied, that one or the other of them is always present in malarial fevers. So far, there is no evidence to show that they are ever characteristically present in any other disease. At least four or five different forms of haematozoa have been examined and partially studied, which differ not only in form, but in period of development. The relations of the parasites to the symptoms of the disease have also been partially worked out, and it is most interesting to note that, in the case of several fevers at least, the paroxysm or chill corresponds in time to the process of segmentation or division. These little organisms multiply by division. They will grow and divide into from twelve to twenty other lively young germs in sixty hours from the time they started.

As soon as it separates, the new germ immediately goes to feeding vigorously, preparatory to becoming a parent itself. Some microscopists have now become so expert that they can tell, by examining a drop of the blood of a patient, exactly what kind of fever, whether intermittent or remittent, and, in the case of intermittent fever, what the period of the recurring chill is. Some claim also that they can tell by the appearance and development of the organism approximately when the chill will occur.

In intermittent cases there are at least

two distinct forms of organisms, which cause tertian (or every other day) and quartan (or every fourth day) chills. It is now believed that other types of intermittent fevers are combinations of these, though some believe that they are due to other forms of haematozoa having different periods of development.

The organisms of remittent fevers appear to be more complicated, though one investigator has discovered in these cases a peculiar crescent-like haematozoa, which develops within the blood corpuscles and forms very characteristic and distinct structures. These crescent haematozoa are now believed to be the cause of the pernicious malarial fever of Italy.

It is well known that malaria occurs particularly in low, marshy regions, where there is much decaying vegetable matter. Low-lying districts along bodies of fresh water, old river-beds and tracts of land which are rich in vegetable matter, and particularly those which are insufficiently drained, are favorable localities for the development of these germs. It is not meant that wherever these conditions occur there malaria is certainly to be found. This is not the rule by any means. There are many districts that appear favorable for malaria which never have any. We only mean that wherever malaria actually occurs both conditions, viz., decaying vegetable matter and moisture, are sure to be found somewhere in the neighborhood.

Malarial germs are distributed all over the world. Malaria is common in Southern Russia, and malarial fevers are very severe in certain parts of Italy. Different kinds of malarial fevers prevail in Germany and France and England, and, in fact, in some portions of almost every country on the globe.

In America malaria has occurred in the past at different points throughout the entire Atlantic slope, and at some places along the great lakes, and in the West

and Northwest. It is now very rare in the Western and Northwestern States and along the Pacific coast, and seems to be disappearing gradually from the lake region. It is encouraging also to be able to affirm that, beginning at the North, it seems to be disappearing from the Atlantic States with the opening up of the country and the more perfect drainage of the land, though it is still frequently found in isolated regions along the coast from New York, south. It is distinctly a disease that characterizes new and unopened countries, and recedes as the country is thoroughly opened up and drained.

The relations of malaria to climate are not so thoroughly understood. It does not belong exclusively to hot countries. All we know now is that malarial germs become more prevalent with the increasing heat. Along the Atlantic coast we may have a few cases in May, and more as the heat increases, continuing into September and October. A tolerably high summer temperature seems to be one of the essential conditions for the development of the germ where it occurs, but it is not necessary for this heat to be continued over a long time, as in the tropical regions. As regards the relation of the germs to hot and wet seasons, little can be positively asserted, though it appears that in the tropics malarial fevers are most prevalent in rainy seasons, while in the temperate zone they are more numerous after a long, hot season, followed by abundant rain. If either the heat or moisture is excessive the development of malarial germs appears to be checked for the time.

We do not know how these germs propagate in the swampy lands, or how they get into the system. Many facts indicate that they are carried to some distance by winds. They certainly appear to survive better in damp weather than in dry. Thus the infection seems most liable to occur

at night or through exposure to damp air or falling dew. It is believed that in this way the natural waters in malarial regions, especially those of sluggish streams or marshes, become the carriers of the germs.

The above facts suggest certain simple means of prevention, which ought always to be observed by those who reside in a region liable to be infected by malaria. Thorough drainage of all lowlands, especially those containing decaying vegetable matter, or other means for removing the conditions favorable to the development of those germs, should always be adopted where possible. Where this is not practicable, and in all cases where any doubt prevails as to the existence of malaria, the people should avoid exposure to the night air while the dew is falling, or, better still, at any time of night. In all cases care should be taken that the drinking-water is free from the infection.

The planting of trees has been held to interfere with the transmission of the germs by the prevailing winds. In many portions of the country where malaria occurs this is well understood by the older inhabitants, who always build their houses so that a large body of woods stands between them and the dangerous swamp or river bottom. In malarial sections the cotton crop, especially when grown on rich, damp bottom lands, leaves a great deal of debris upon the land in the fall, which decays and promotes malaria. Hence the prevalence of malaria among those who dwell to the northeast of such bottom lands. In such cases it is believed that a strip of woods will sufficiently protect the inhabitants from the germs which are borne by the prevailing southwest winds.

The main thing, however, seems to be to insure the purity of the drinking-water. As a general rule, all waters coming directly, or rather indirectly, from near the

surface of the ground must be avoided. Recourse must be had either to deep wells, or the drinking-water must be boiled. The experience of the town of Hawkinsville, Ga., will well illustrate this point. This thrifty little manufacturing city was located, unfortunately, in a malarial section. Although the disease was not at all severe, malaria was so common that its inhabitants got into the habit of expecting to have a few chills every fall, as a matter of course. The water used, until recent years, was drawn from shallow wells, which undoubtedly received the surface drainage of the country. In order to get a larger supply of water one of the cotton factories put down an artesian well. The autumn following, the people who had used this water exclusively during the season were gratified to find that they escaped from the expected chills. The result was that a sufficient number of artesian wells were sunk to supply the entire town, and the place has been free from malaria ever since. Another very striking illustration was found in the Brazos bottom of Texas, which was long known as such a malarial country that a white man could not risk living there during the later summer and fall. During a recent visit to that section the writer learned that the rule now is to keep out of the damp air at night, drink only artesian water, and you will be safe.

Our conclusion is, therefore, that malaria is not peculiar to any section, but is caused by a specific germ or germs, which may occur wherever low, marshy lands contain large bodies of decaying vegetable matter. Malaria is not limited to any one country or section, but is disappearing from all sections of America as fast as the conditions for its existence are removed. It is no more characteristic of the South than of any other section of the country, and its consequences may usually be prevented by using pure drinking-water and

avoiding exposure to the night air.—*Southern States.*

Examination of Drinking-Water.

As every one is interested in the purity of the water he drinks, or ought to be, since contamination of the drinking-water is a frequent cause of disease—nearly always of typhoid fever—and as interest in an important subject is apt to be increased by a better understanding of it, it gives us pleasure to print the two papers below. They were read at the Maryland Public Health Conference held in Baltimore February last, and will well repay perusal.

THE BACTERIOLOGICAL EXAMINATION OF WATER.

(By Wm. Royal Stokes, M. D.)

Another series of examinations are conducted in municipal laboratories which are directed towards the study of the water supply. Inspection of the various water sources is often of great value, for carefully-trained inspectors can often discover nuisances directly contaminating a source of supply, and demand their removal. The chemical examination of water also forms a ready method of detecting the presence of organic pollutions and the products of bacteria.

The bacteriological investigation of water is also of great importance. Drinking-waters have at times been found to contain such pathogenic or disease-producing bacteria as the bacillus of anthrax and typhoid fever; and during epidemics of Asiatic cholera the germ of this disease has frequently been found in the water supply. These organisms are generally deposited in the water with human intestinal discharges. If, therefore, we are able to obtain an exact knowledge of the bacterial condition of any water by means of our tests, we obtain data upon which

to devise means by which the supply may be rendered purer.

The bacteriological examination of water consists in three distinct series of examinations:

First. A careful classification of the various microscopic animalcules and plants present in the microscopic sediment. This is of value in determining the origin of various unpleasant tastes and odors, or surface contamination of deep wells.

Second. The numerical estimation of the number of bacteria present in one cubic centimeter of water.

There is generally a difference between the bacterial contents of deep wells and surface or river waters. Artesian wells are often free from bacteria, and pure water from ordinary deep wells should not contain, as a rule, more than 100 to 200 bacteria to the cubic centimeter. Stagnant or polluted well or spring water often may contain several thousand bacteria in one cubic centimeter.

It would be a difficult matter to establish any arbitrary standard for the bacterial contents of rivers, since the number of germs present is influenced by such varying conditions as the rainfall, temperature, the exposure to light, the depth of the water, its aeration, and the quantity of organic matter and mineral salts which the water contains.

Many large rivers, however, only contain from 500 to 1,000 bacteria per cubic centimeter, above the site of large towns, while below such places the same water, which has received the waste from factories, sewers, stables and household drains, may be found to contain from 15,000 to as high as 100,000 germs to the cubic centimeter. These are generally harmless to human beings, as most of the water bacteria perish at the temperature of the human body. Averages taken from numerous observations of this character are often useful in determining the prob-

able presence of pollution from one or all of the sources above named.

The method simply consists in adding one centimeter of the water to be examined to a tube of melted sterile gelatine by means of a graduated glass tube, and then pouring the fluid into a sterile Petri dish. The gelatine becomes solid at the room temperature, and in several days the bacteria appear on the surface as small elevated collections, called colonies. These can easily be counted by means of the Lofar colony-counter. If the colonies are too numerous the water can be diluted before adding it to the gelatine.

It has been already mentioned that many disease-producing germs find their way into the water from the intestinal deposits of men or animals. The fecal discharges of men and animals constantly contain a germ known as the bacillus coli communis, or colon bacillus. This can always be recognized, if present, by means of a series of simple tests, which depend upon the fact that this organism causes, in a characteristic manner, the fermentation of the various sugars when dissolved in nutrient bouillon.

Theobald Smith has studied this fermentation and gas-production in the fermentation tube, and has found that water containing the colon bacillus will always carry out the same definite formula, even in the presence of the other fermentative bacteria of water. He finds that about 50 per cent. of gas is formed in the stem of the fermentation tube, containing a two-per-cent. solution of glucose or grape-sugar after exposure to a temperature of 35° C. for three days. The gas always consists of one part of carbon-dioxide to two parts of hydrogen, and the medium always gives an acid reaction. The same may be said of lactose, or milk-sugar. Saccharose, or cane-sugar, is either not fermented at all or the same proportion and amount of gas forms very slowly, not reaching its maxi-

mun quantity for two weeks. Many other bacteria have been similarly tested, but the fermentation formula never resembles that of the colon bacillus.

We are, therefore, in possession of a fairly exact method of detecting the presence of intestinal contamination; and, although the colon bacillus may occasionally be present in pure drinking-water, yet its detection in quantities as small as from 0.1 to 0.5 of one cubic centimeter of water should lead to a careful inspection of the water source. Waters free from such bacteria can always be obtained, and it is certainly more pleasant to use such a fluid than one which may at any time contain bacteria capable of producing disease.

The use of large sand-bed filters has lately been applied to filtering the water supplies of large towns or cities with remarkable success. The water is forced through this filter until a gelatinous deposit has formed on the surface, consisting of myriads of bacteria and microscopic plants called algae. This deposit prevents the further egress of bacteria, and by means of this method 98 per cent. of all bacteria are removed from the water. Most of the organic material present is also oxidized by means of the bacteria in the filter being converted into harmless nitrates.

The efficacy of these filters in preventing disease has been demonstrated in various large cities. Hamburg, during an epidemic of Asiatic cholera, developed about five thousand cases of this disease, while Altona, just adjoining it and using the same water supply, was practically free from the disease. The water passed through sand-filters before reaching the consumer in Altona, while Hamburg used unfiltered water. The latter municipality has since built a very expensive sand-filter bed.

Lawrence, Massachusetts, has practically been free from typhoid fever since the erection of its filter-beds, whereas be-

fore this time the city has been visited by many epidemics of this disease.

This simple method, therefore, rids the water which we drink of many harmful bacteria, and its more general adoption cannot be too strongly urged.

These methods, together with the examination of sputum for tuberculosis, the determination of the potency of various antitoxines, the examination of blood for the typhoid reaction, and of milk for abnormal quantities of pus, constitute most of the work at present performed in municipal laboratories.

DR. AUGUST STABLER, Brighton: How long does this sand-filter last—I mean how long is it a perfect filter, and how soon has it to be changed?

DR. STOKES: That is an important question, and I should have spoken of it. The sand does not do the filtering, but the bacteria soon form a gelatinous deposit on the sand, and, by preventing the further passage of bacteria, they make a true filter. The filter then can be used year in and year out, but has to be occasionally cleaned. This cleaning is necessary about every two or three weeks. The gelatinous deposit is scraped away, the water (which was turned off into another channel during the cleaning process) is allowed to run in again, and another deposit forms.

DR. JAMES H. MCCORMICK, Gaithersburg: Relative to the making sand-filters for the large cities and towns, the question of cleaning is one that, from an economic standpoint, is of the utmost importance. As Dr. Stokes has said, from three to five weeks is the average life of the filter, when it must be cleaned; and it is not only the cost, but the lack of use of the water while the new filter is forming. There has been a new filter made, composed of sand and slack, that is used inside of a sand-filter. Bacterial examination has proved it to be superior to the sand-filter, and, by an automatic appli-

ance, the stream may be reversed and the filter cleaned out in a few hours, when the water is ready to use. From reports that have been received from Germany recently, it is proven that they can be built more cheaply, run more economically, and at the same time are more satisfactory.

DEMONSTRATION OF THE CHEMICAL EXAMINATION OF DRINKING-WATER.

(By W. B. D. Pennington, A. M., Ph. D.)

I first want to make a statement as to what a chemical analysis of water involves. The ordinary idea of it is that it is the same kind of analysis as that done in examining a sample of iron ore, in which the test is the same wherever the specimen came from. In the examination of water, however, the circumstances are somewhat different. The chemist takes a very large quantity of water and proceeds to examine for certain substances that are found naturally in water, or are present or produced by chemical means that are not usually present. We find, for example, that urine contains about 5,800 parts of chlorine in the million, in the form of common salt. In the case of natural water the amount seldom runs over about 6 parts per million. Our first step, then, is for the estimation of the amount of chlorine in the water, and if we find it exceeds certain limits we are justified in presuming that the water has been contaminated by some substance containing a large amount of common salt. The next step is the determination of the amount of total solids, which is often a matter of considerable importance. A measured quantity of water is placed in a dish and, by heat, evaporated to dryness. The amount of mineral matter present is, of course, of importance in just so far as the substances that make up that mass are of importance. We examine for

magnesium sulphate, lime, sodium sulphate, etc.

The most important part, however, of a chemical testing of water for sanitary information is the determination of nitrogenous matter; that is noticed when it is contaminated by animal matter, particularly that of an organic nature. This material, which is introduced into the water, cannot be determined by its taste or odor. A large quantity of the albuminous matter will pass through the ordinary natural filtration without sensible change, unless the filter is very thick. The first step, then, is to boil the water with an agent that decomposes whatever animal matter may be present, and converts it into albuminoid-ammonia.

The nitrogenous material generally exists in water as the carbonate. It is treated with alkaline permanganate of potash, and the first change is the formation of free ammonia. The next change is the formation of nitrites, and finally the oxidation is complete, and it is found in the water in the form of nitrates. The examination then consists in determining the amount and character of residue, the amount of organic matter gotten by evaporation, and we then proceed to study the changes that the organic matter has passed through since being introduced into the water.

Let us take a sample of impure water. This specimen which I prepared contains a small quantity of ammonia, about twelve one-hundredths parts per million. I add a small quantity of Nessler's reagents. In the course of a few minutes you will see that the color of the water has changed entirely. It is now quite yellow, and the depth of the color measures the amount of ammonia that was present. We can estimate about one part in 20,000,000. We have here two cylinders, and we add to one of them, which is graduated, a mixture containing a known amount of am-

monia, the standard being 1500 parts per million. The water has the Nessler reagent added and we then draw off a portion of the darker liquid until we make colors match, and by reading off the figures we can, without difficulty, detect and estimate the amount up to the limits I have stated.

The next examination is one for nitrites, and if they exist in more than a very small quantity, we condemn the water entirely, for they indicate that active decomposition is going on. The test is even more delicate than the one I have just shown you. I add the reagent to this water, which contains nitrites, and in the course of a few minutes a red color develops, and its depth is measured in the same way as before. It is plain that this process is delicate to the extent of one part in 50,000,000.

Now for the estimation of nitrates. In principle it is done in about the same way. We evaporate a measured portion of water, usually 100 c. c. Add to the residue a mixture of strong sulphuric and carbolic acids, and then we add a small quantity of water, and a characteristic color is formed; in this particular case it is yellow. There is one point that I ought to mention; the water I have been using is not a natural water, but was prepared for the purpose, and is about ten times as strong as that usually found. There is one other test (and that generally used in the so-called popular ways of judging water) and that is the test for chlorine. In the method generally advised you are told to treat the water with silver nitrate, and if it becomes pearly it contains chlorine. That is true, but all water contains some chlorine and it is necessary to estimate the quantity if the test is to be of any service to you.

In regard to popular tests, there are quite a number of them, but none of them are worth anything. The one by which

you test the water with silver nitrate, as I have just said, is useless. Distilled water and properly cleaned vessels are seldom at your disposal. The best test I know which can be used in the country districts is a modification of any I have ever seen proposed, and can be easily applied. The source of contamination is usually a closet, stable or pig-pen, and in these cases the question can be determined frequently by adding about five gallons of coal oil to the suspected place, and see if it finds its way into the well. It is not a delicate test, but often it will convince you and your patients of the condition of the well.

Now, in regard to filters, and particularly these of the household, they are most of them modifications of the Pasteur filter, and consists of a porous vessel through which the water percolates, and in that way is purified. They are all very good for a short time, but those that cannot be cleaned are bound to be, in the end, a source of trouble.

The bacteria will find their way through the pores of the filter, and unless we can remove a portion of the filter and clean, it may become dangerous. The back washing does not cleanse a filter sufficiently well to make it safe. The only thing to do is to clean it by fire.

I would like to add one word on a point raised by Dr. Stokes. The chemical examination of water does not show the presence of any specific organism; it is not intended to do that. It does show the fact there has been organic matter present in the water, and to some degree, the amount of decomposition it has undergone.

Whooping-Cough.

Few people, outside of those who study mortality statistics, realize how many children die annually from whooping-cough. It is generally looked upon as a trivial affection, and an outbreak of the

disease excites little attention. It will no doubt astonish many people to learn that in the United States whooping-cough destroys more children than scarlet fever, a disease of which all mothers have the greatest dread. The last census showed that during the year ended May 31, 1890, 8,032 children died in the United States from whooping-cough. For the same time there were only 5,969 deaths from scarlet fever. This does not represent the whole number who died from whooping-cough, nor from scarlet fever, as it is probable that nearly one-third of the deaths were not reported.

The exact cause of whooping-cough has not yet been discovered, but there is every reason to believe that it is caused by a germ, which grows in the body, like in diphtheria, the cause of which is well known. We know that whooping-cough is contagious, and that when a case of the disease appears it can only be due to contact with some preceding case, or with some article which has been about a case of whooping-cough and has carried contagion. Knowing this, we know that by strict isolation of a child having whooping-cough (and, therefore, isolation of the contagion), and by destroying by disinfection the germ of the disease which may be found about the sick room and on articles it may contain, we may prevent any further extension of the disease. This seems simple enough, but it is exceedingly difficult in practice to carry out such measures. There are many reasons for this. In the first place, as previously stated, there is very little dread of the disease. Parents take but little care to guard their children against exposure. Parents having children sick with the disease do not realize their grave responsibility in permitting them to go into places where other children may come in contact with them. It is no uncommon thing to hear on street cars, railway trains,

and in other public places, the characteristic whoop of this disease.

Many cases are never seen by a physician, and even where a physician is called disinfection is quite frequently neglected. The health authorities have done but little for the prevention of this disease. It is difficult to get reports of cases, and practically impossible for the cases not seen by physicians.

The disease is undoubtedly contagious in the early stages, before the "whoop" makes its appearance, so that isolation, even if practical, is often too late to prevent the exposure of others. An attack lasts for a considerable period of time, often many weeks, so that it becomes a hardship to shut patients up a sufficiently long time. These facts make whooping-cough an exceedingly difficult disease to control.

Whooping-cough is especially fatal to very young children, and children under one year are very much more apt to be attacked by whooping-cough than by any other contagious disease. Of the 8,032 deaths reported in the United States during the last census year, 4,507, more than half, were children under one year of age, and fully nine-tenths of the deaths were of children under five.

Mothers should, therefore, have special regard for their nurslings, and guard them with every possible care from contagion.

During the prevalence of whooping-cough young babies should be kept at home as closely as possible. If an older child in the family takes sick with what is likely to be whooping-cough the *baby* is the one to receive the greatest care. Where possible, it should be entirely removed from the house, and, if this is impracticable, it should be kept as far away from the patient as possible. Call a physician, and be guided by him in carrying out strict measures for disinfection. When

the disease is first introduced into a community the health authorities should deal with it like smallpox, using every possible care to confine it to the household in which it first appeared. When the disease becomes epidemic, it must be confessed that health officers are almost powerless to control it, but even then preventive measures should not be abandoned, for if nothing more be accomplished the public will be taught that in the eyes of those appointed to guard the public health whoopingcough is a disease of sufficient gravity to warrant the enforcement of all possible measures to prevent its spread, and in this way the public may be gradually educated to the same belief.—*Editorial in the Ohio Sanitary Bulletin.*

Infectious Disease of Parrots.

77-79 RUE NOTRE DAME DES CHAMPS,
Paris, France, June 15, 1897.

SIR: I have the honor to transmit herewith for your consideration a clipping from the Paris edition of the *New York Herald* of June 13, 1897, relative to psittacosis, an infectious disease of parrots, communicable to man.

In the past few years there have been two distinct outbreaks of the disease in Paris, attended by a considerable mortality, and there is every probability that the suspicious, and up to this time unexplained, outbreak of an infectious disease in Marseilles during the months of January and February of the present year may in all probability be traced to the same cause. For this statement I have the highest authority, and I submit the article, as it serves, in a measure, to clear up what was a perplexing mystery to me, and concerning which I fully realized the unsatisfactory nature of my report upon Marseilles. The probability is rendered all the stronger by a recollection of the neighborhood in which the outbreak oc-

curred, one of the houses, as it will be remembered, being used as a bird store, making a specialty of East Indian parrots.

Very respectfully,

H. D. GEDDINGS,

Passed Assistant Surgeon, U.S.M.H.S.

[Inclosure.]

PSITTACOSIS.

Never did parrots make themselves talked about so much in Paris as of recent years. The fact is, they have made so many victims that it is about time to put an end to their havoc. The thing began in 1892, when two distinct epidemics on a small scale were noted in two separate quarters of the city, but it was found that the guilty birds had moved from one part of the town to the other. The same thing happened again in the following year, caused by other parrots. Then in February of last year there was another epidemic which overtook five persons, of whom two died. And those who succumbed had been conspicuous in tending the parrots, giving them food from their own mouths and warming them in their clothes. The sick parrots were evidently responsible for these successive epidemics. M. Nocard, of Paris, had, as far back as 1893, discovered in the osseous marrow taken from the wings of parrots brought from America to France a bacillus of extreme virulence alike to parrots, to mice, guinea pigs, rabbits, and pigeons.

Following on the epidemic of a year ago MM. Gibbert and Fournier took up the study of this bacillus, which they traced to the blood in the heart of one of the victims. The bacillus in question has some resemblance to the bacillus of typhoid fever, but differs from it in the appearances of its growth on gelatine, and above all in its virulence. The disease which it produces is met with mostly among members of the parrot tribe, hence its name of psittacosis. From a clinical

point of view it presents the aspect of a typhoidal-atoxo-adyamic fever, without abdominal accidents, and with predominance of nervous and pulmonary troubles. M. Debove, professor of the Paris faculty of medicine, inclines to the belief that we have here to deal with a special microbic disease, frequent among parrots, which can be transmitted to mankind with redoubtable facility.

By reason of its contagious nature, M. Debove recommends certain precautionary measures: Surveillance over the importation of parrots; forbidding bird fanciers to sell sick birds through hawkers; instructions for the guidance of fanciers in case of sickness among the birds.

These measures would be excellent; but it is to be feared that they will remain a dead letter. Owners of parrots increase in their fondling attentions to their pets when the latter are ill, and contagion takes place. Special emphasis must be laid on the danger of such proceeding. The malady contracted is very serious, and often fatal in its consequences. It is but prudent to repeat this warning. To expose oneself to risks of death through affection for a parrot is rather excessive.—*U. S. M. H. S. Public Health Report.*

Review of Diseases for July, 1897. (Seventy-eight Counties Reporting.)

Eighty-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious disease to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence, in the county, is to be understood as reported.

For the month of July the following

diseases have been reported from the counties named:

MEASLES.—Caswell, several cases; Hertford, 5; Northampton, in all parts; Orange, some; Pasquotank, 6; Perquimans, 1; Vance, a few; Washington, 20—8 counties.

WHOOPIING COUGH.—Alamance, a few cases; Brunswick, 8; Cabarrus, 93; Caswell, several; Davidson, 6; Forsyth; Guilford, many; Hertford, 4; Johnston, 5; Mitchell, 40; New Hanover, 5; Northampton, in all parts; Onslow, 1; Pasquotank, 2; Perquimans, 6; Person; Robeson; Rockingham, 7; Sampson; Stokes, 50; Surry, 8; Union, several; Vance, a few; Wake, 6; Yadkin—25 counties.

SCARLATINA.—Caswell, 1, quarantined thoroughly; Granville, 3, quarantined strictly; Wake, 1.

DIPHTHERIA.—Granville, 1, quarantined strictly; Guilford, 2; Northampton, 1; Polk, 3; Robeson, 1; Wake, 1.

TYPHOID FEVER.—Alamance, 2; Alexander, 6; Ashe, sporadic cases in all parts; Beaufort, 12; Buncombe; Burke, 9; Cabarrus, 26; Caldwell, mild, in all parts, 40 cases; Chatham, 1; Cherokee, 5; Chowan, 2; Clay, 10; Columbus, 3; Cumberland, 2; Davidson, 14; Durham, 40; Edgecombe, 4; Franklin, in the northern part, of a severe type, and quite fatal; Gaston, a few; Greene, 1; Guilford, many; Haywood, 6; Henderson, 3; Hertford, 5; Iredell, 10; Jackson, 14; Macon, 8; Madison, 1; Martin, 5; Montgomery, 10; Nash, in all parts; New Hanover, 3; Northampton, in all parts, 12 cases; Orange, 12; Pasquotank, 6; Pender, 4; Perquimans, 30; Pitt, 2; Polk, 4; Richmond, a few; Robeson, 6; Rockingham, 2; Rowan, 6; Rutherford, 10; Sampson, a few; Stanly, in nearly all parts; Stokes, 10; Surry, 12; Swain, in all parts, to some extent; Transylvania, in all parts; Vance, a few; Wake, 4; Washington, 6; Watauga, in all parts, 10 cases; Wayne, in all parts, 15

cases; Yadkin, several of mild type; Yancey, a few of mild type—57 counties.

MALARIAL FEVER.—Bertie, Chowan, in all parts; Columbus, in some sections; Cumberland, in all parts; Davie; Forsyth; Gaston, quite common; Greene, Guilford, Halifax, Lincoln, Martin, Lenoir, Northampton and Onslow, in all parts; Pasquotank; Perquimans, in all parts; Person; Pitt; Richmond; Robeson; Rockingham, in all parts; Rowan; Sampson, a few; Stanly; Swain, in all parts; Wake, in all parts reported from; Washington, in all parts; Wayne; Wilson, in all parts, of mild form—50 counties.

MALARIAL FEVER, HEMORRHAGIC.—Davidson, 1.

MALARIAL FEVER, PERNICIOUS.—Hertford, 1; Rockingham, 4.

DIARRHEAL DISEASES.—Burke; Chowan; Guilford; Iredell; Macon; Mitchell; Montgomery; Pitt; Stanly; Yancey.

MILK SICKNESS.—Cherokee, in many mountainous portions; several deaths.

ROTHERN.—Washington.

CHOLERA IN HOGS.—Robeson.

CHOLERA IN FOWLS.—Wake.

MENINGITIS IN HORSES.—Pasquotank.

The following counties state that there are no diseases to be reported: Alleghany, Bladen, Dare, Randolph and Warren.

No reports have been received from the

Superintendents of Health, of Anson, Catawba, Cleveland, Craven, Lenoir, McDowell and Moore.

Summary of the Mortuary Reports for July, 1897. (Twenty Towns).

Only the towns from which certified reports are received are included:

	<i>White. Col'd. Total.</i>		
Aggregate population	57,967	44,767	102,734
Aggregate deaths ..	52	107	159
Representing annual death rate per 1,000	10.8	28.7	18.6
<i>Causes of Death. White. Col'd. Total.</i>			
Typhoid fever. . . .	11	5	16
Malarial fever.	5	10	15
Whooping-cough. . .	1	9	10
Pneumonia	0	2	2
Consumption	6	22	28
Brain diseases.	2	4	6
Heart diseases.	6	6	12
Diarrheal diseases. .	8	20	28
All other diseases. .	13	28	41
Accident.	0	1	1
	52	107	159
Deaths under five years	13	47	60
Still-born.	5	9	14

Mortuary Report for July, 1897.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Euphleria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Total. Deaths Under 5 Years.	Still-born.
		By Races.	Total.																						
Asheville.....	W.	8,000		13.5		1																			
Dr. E. C. Starnes.	C.	4,000	12,000									5	1						1			9			
Durham.....	W.	4,000		15.0	14.0	1							2									5	7	2	1
Dr. J. M. Manning.	C.	2,000	6,000	12.0									1									2			
FAYETTEVILLE.....	W.	3,500		3.4	16.6	1																1	8		1
Dr. J. V. McGowan.	C.	2,500	6,000	32.0									2						1			1			
GREENSBORO.....	W.	5,500		3.3	19.5	1							1									2	13	1	1
J. S. Michaux, City Clerk.	C.	2,500	8,000	52.8		1	1	2				1	1	1			1	2	2			11	7	1	
HENDERSON.....	W.	2,250		21.3	11.1								1	1			1	1				4	4	1	
Dr. J. H. Tucker.	C.	2,000	4,250	0.0																		0			
HILLSBORO.....	W.	400	700	0.0	17.1																	0	1		
Dr. D. C. Parris.	C.	300		40.0															1			1			
LENOIR.....	W.	800		39.0	21.8	2																2	2		
Dr. A. A. Kent.	C.	300	1,100	0.0																		0			
MONROE.....	W.	1,800		13.3	15.0		1															1	3		
Dr. J. M. Blair.	C.	600	2,400	20.0		1																1			
OXFORD.....	W.	1,500		8.0	19.2																	1	4	1	
Dr. T. L. Booth.	C.	1,000	2,500	39.0									2									3			
RALEIGH.....	W.	8,000		6.0	12.0									2			1	1				4	15	1	1
F. P. Sale, City Clerk.	C.	7,000	15,000	18.8									3	1		3	3					11	6	1	
ROCKINGHAM.....	W.	1,300		18.5	13.7	1																0	2		
Dr. W. H. Steele.	C.	450		0.0																		0			
ROCKY MOUNT.....	W.	1,600		0.0	0.0																	0	0		
Dr. G. L. Wimberley.	C.	1,000	2,600	0.0																		0	0		
SALEM.....	W.	3,942		3.0	2.8																	1	1		
Mayor S. E. Butler.	C.	342	4,284	0.0															1			0			
SALISBURY.....	W.	4,000		6.0	17.8	2							3	1								2	9		
Dr. John Whitehead.	C.	1,500	5,500	56.0										1								1			
SCOTLAND NECK.....	W.	775		31.0	30.0								1									2	3	1	
Mayor J. A. Perry.	C.	425	1,200	28.2															1			1			
TARBORO.....	W.	1,200		10.0	4.0	1																1	1		
Dr. L. L. Staton.	C.	1,300	2,500	0.0																		0			
WARRENTON.....	W.	1,000		0.0	0.0																	0	0		1
Dr. G. A. Foote.	C.	500	1,500	0.0																		0			
WASHINGTON.....	W.	3,013		12.0	17.4	1											2					3	8	2	
Dr. Joshua Tayloe.	C.	2,500	5,500	24.0									1				4					5	4		
WELDON.....	W.	700		17.1	8.3									1								0	1		
Mayor J. T. Gooch.	C.	750	1,450	0.0																		0			
WILMINGTON.....	W.	9,000		20.0	28.3	1	4					1	1	1			1	6				15	57	4	2
Dr. J. C. Shepard.	C.	13,000	22,000	31.1			8					4	2	1			5	16	1			37	52	15	2
WILSON.....	W.	2,500		9.5	8.0									1								2	3		
Dr. N. Anderson.	C.	2,000	4,500	6.0																		1			
WINSTON.....	W.	5,200		16.1	22.8	2			1			3										7	29	3	0
Dr. John Bynum.	C.	1,800	10,000	53.0		2			6			1	7				3	3				22	12	4	

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. R. A. Freeman.	Johnston	Dr. R. J. Noble.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany.....	Dr. Robert Thompson.	Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	Dr. Thomas F. Costner.
Ashe	Dr. L. C. Gentry.	McDowell	Dr. George I. White.
Beaufort	Dr. Joshua Tayloe.	Macon	Dr. S. H. Lyle.
Bertie.....	Dr. H. V. Dunston.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. I. Watson.	Mecklenburg...	Dr. H. M. Wilder.
Buncombe.....	Dr. E. C. Starnes.	Mitchell.....	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery ..	Dr. W. A. Simmons.
Cabarrus	Dr. Robert S. Young.	Moore.....	Dr. Gilbert McLeod.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover...	Dr. J. C. Shepard.
Carteret	Dr. George N. Ennett.*	Northampton...	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. D. McD. Yount.	Orange	Dr. D. C. Parris.
Chatham	Dr. J. B. Matthews.	Pamlico	No Board of Health.
Cherokee	Dr. J. F. Abernathy.	Pasquotank	Dr. J. E. Wood.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans...	Dr. C. C. Winslow.
Cleveland	Dr. O. P. Gardner.	Person	Dr. J. A. Wise.
Columbus	Dr. I. Jackson.	Pitt	Dr. Frank W. Brown.
Craven	Dr. J. W. Duguid.	Polk	Dr. C. J. Kenworthy.
Cumberland ..	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. H. Steele.
Dare	Dr. W. B. Peering.	Robeson	Dr. H. T. Pope.
Davidson.....	Dr. John Thames.	Rockingham...	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John W. Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford....	Dr. E. B. Harris.
Durham	Dr. John M. Manning.	Sampson.....	Dr. John A. Stevens.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. D. P. Whitley.
Forsyth	Dr. E. F. Strickland.	Stokes	Dr. W. L. McCannless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Waltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania...	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville.....	Dr. T. L. Booth.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. J. H. Tucker.
Guilford.....	Dr. W. J. Richardson.	Wake	Dr. P. E. Hines.
Halifax	Dr. I. E. Green.	Warren	Dr. George A. Foote.
Harnett.....	No Board of Health.	Washington...	Dr. W. H. Ward.
Haywood.....	Dr. J. Howell Way.	Watauga	Dr. W. G. Councill.
Henderson	Dr. B. L. Ashworth.	Wayne.....	Dr. W. J. Jones.
Hertford	Dr. John W. Tayloe.	Wilkes.....	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. N. Anderson.
Iredell	Dr. W. J. Hill.	Yadkin.....	Dr. T. R. Harding.
Jackson	Dr. William Self.	Yancey.....	Dr. J. L. Ray.

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BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington.	C. J. O'HAGAN, M. D.,.....Greenville.
S. WESTRAY BATTLE, M. D.,.....Asheville.	J. D. SPICER, M. D.,.....Goldsboro.
W. H. HARRELL, M. D.,.....Williamston.	J. L. NICHOLSON, M. D.,.....Richlands.
JOHN WHITEHEAD, M. D.,.....Salisbury.	A. W. SHAFFER, SAN. ENG.,.....Raleigh.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XII. SEPTEMBER, 1897. No. 6.

THE BULLETIN AND THE MEDICAL PROFESSION.

With this issue we carry out the instructions of the Board to mail a copy of the BULLETIN to every registered physician in the State, as far as we can. The qualification is due to the fact that in spite of the most urgent appeals, we have not yet received lists of the registered physicians from seven counties. We feel that we can wait no longer, and will use our old list for these counties. We believe that this will bring the Board and the profession closer together, and will materially help the cause of sanitation in the State. In our next issue, when we will have more space, we will have something more to say on this subject.

THE NEW SUPERINTENDENTS.

We have been notified of the election and qualification of the following new Superintendents: For Carteret county, Dr. F. M. Clark, Beaufort; Cleveland, Dr. R. C. Ellis, Shelby; Columbus, Dr. J. F. Harrell, Whiteville; Iredell, Dr. H. F. Long, Statesville; Johnston, Dr. L. D. Wharton, Smithfield; Mecklenburg, Dr. C. M. Strong; Richmond, Dr. William M. Fowlkes, Rockingham; Vance, Dr. J.

R. Moss, Henderson; Warren, Dr. P. J. Macon, Warrenton. While we regret the separation from those with whom our relations for the past two or more years have been so agreeable, we welcome our new coadjutors, and hope they will fully exemplify the proverb of the new broom.

YELLOW FEVER.

The appearance of this dread disease, first in Ocean Springs and subsequently in other Gulf towns and cities, including New Orleans and Mobile, has made it the all-absorbing topic of the day, especially with the health officers and physicians of the South. As our readers are mostly medical men, we feel that the re-printing in full of the appended articles will be appreciated by them. We sincerely hope that the principal State and United States Health authorities, working in concert, may be able to prevent the spread of the disease, and save our people of the far South from the horrors of an epidemic.

THE RIVAL MICROBES OF YELLOW FEVER.

Many efforts have been made within the past twenty years to isolate the specific microbe of yellow fever, and a number of claimants for the honor of having accomplished this task have from time to time

appeared, but so far none of them has had his work properly verified by competent men. Among the earliest claimants were Dr. Carmona, of Mexico, and Dr. Freire, of Brazil. The former gave his pseudo-microbe the name of *Peronospora lutea*, and the latter named his germ *Cryptococcus xanthogenicus*. Since 1883, when these supposed discoveries of the yellow-fever microbe were announced, there have been several other aspirants for glory. Bacteriologists are too exacting in the conditions and evidence they demand, before crowning anyone victor, for a false claim to be accorded a standing among them in a matter of this kind. It is no doubt very funny for the comic papers to assume for them all sorts of silly discoveries, and it is equally amusing to find the enemies of bacteriology quoting their stale jokes as proof of the falsity of the whole science, or at least of as much of it as applies to medicine. The fact is, that no other body of scientific workers takes more pains to thoroughly verify its work. Until every point has run the gauntlet of independent test, nothing is accepted as proven. Other independent workers, who are quite commonly strangers in remote parts of the earth, see and testify to the same facts before full credence is given. Men who have won names as careful, painstaking bacteriologists are likely to have considerable credence given to their reports from the start, and where a claim looks plausible on its face it will carry more weight before verification than if it appears incredible. Up to the present, most of the supposed discoveries of yellow-fever germs have been announced by men of no marked standing, and their claims have appeared unreasonable to experts. Within a few weeks two new claimants have appeared. Both are men of good standing in such work. The first to appear on the scene was Dr. Giuseppe Sanarelli, Director of the Institute of Experimental Hygiene of the University of Montevideo, Uruguay. Following him has appeared Dr. W. Havelburg, a skilled bacteriologist of Rio de Janeiro, Brazil. As the respective microbes discovered by these men possess few, if any, traits in common, and are found in a different manner and in different parts of the body, there is naturally decided antagonism between the respective claims. No doubt each doctor has found a new bacterium, but it is quite certain that both microbes

cannot be those of yellow fever, and as more facts appear it may turn out that neither contestant has secured the coveted organism. Either both gentlemen have worked with great secrecy, so as to keep their facts away from each other as long as possible, or each must have known what the other was doing long before his work was completed. If Dr. Sanarelli did some of his work in Rio de Janeiro, as is reported, and as he says himself that he received part of his material from the Hospital of San Sebastian at Rio, then it is quite likely that each knew what the other was doing. If this is so, why did they not compare notes and endeavor to harmonize the rival claims? The fact that Dr. Havelburg's report was first published in the *Annales de l'Institut Pasteur*, and that some of his work was done at the suggestion of M. Roux, would seem to indicate that he has strong backing, and that we are likely to have a lively scientific tilt over the affair. The Legislature of Uruguay, assuming that Dr. Sanarelli has demonstrated the truth of his position, has conferred on him honorary citizenship and voted a donation of \$10,000, adding their regrets that the condition of the country does not admit of their doing more. A careful study of the facts, as far as published, leads us to think that Dr. Sanarelli has come nearer proving his position than Dr. Havelburg. The Pasteur Institute is likely to take a hand in the skirmish before long, and then there will be a more complete development of the facts in the case. We understand that that institute is in possession of cultures of both organisms, and will therefore soon be in a condition to pass judgment upon both. In only a few particulars do the two resemble each other. Both are facultative anaerobes (*i. e.*, they normally grow where there is free oxygen, but can, under proper conditions, be developed without it), both ferment sugar, neither liquefies gelatin, neither assumes any characteristic color or form when grown on agar in the incubator at 37° C., both appear frequently in pairs, and both are fully resisted by birds, but not by mammals. Havelburg's organism is a small, straight rod, one micromillimeter long and from three-tenths to half a micromillimeter broad, while that of Sanarelli is also rodlike, but is rounded at the ends and is described as being from two to four times larger. The former is sporeless,

probably unciliated, is found in the stomach and not in the blood-vessels or tissues, makes broth cloudy, produces indol, and curdles milk. Its colonies are finely granular, yellowish discs, with delicate serrated borders, and there is no toxin separate from its body. That of Sanarelli, being air-borne and resisting desiccation, is likely to be found spore-producing. Its movements indicate that it is ciliated, it is never found in the stomach except in unusual conditions that permit of its escaping from the tissues, its natural home is the tissues, it produces no precipitation in meat-broth, it develops no indol, and it does not curdle milk. Its colonies are like drops of milk, having a pearly reflection, and are opaque and projecting when developed at the temperature of the air, but are slightly gray, transparent, and non-projecting when grown in the incubator at 37° C. They likewise produce a very virulent toxin.—*American Medico-Surgical Bulletin*.

THE MICROBE OF YELLOW FEVER.

BY GIUSEPPE SANARELLI, M. D., MONTEVIDEO,
URUGUAY,

*Director of the Institute of Experimental Hygiene
of the University of Montevideo.*

Four centuries have passed since a terrible disease, until then unknown, attacked the daring men who accompanied Columbus in the discovery of America. Two centuries scarcely have gone by since the same disease, leaving its natural habitat in the Gulf of Mexico and the Antilles, appeared first in South America and gave the Portuguese physician, Ferreira da Rosa, the opportunity to describe that strange morbid process which was to acquire so sad a celebrity under the name of yellow fever.

While other infectious diseases, since the great epidemics noted in history, whether through a sort of acquired immunity, transmitted by heredity or owing to scientific prophylaxis, seem to have diminished, little by little, in virulence, or at least tend to remain in their original limits, yellow fever, on the contrary, has progressively enlarged its domain, and is far from even diminishing its virulence.

From the point of view of the anatomical lesions, yellow fever may be considered as the type of the diseases (steatogenous) that cause fatty degeneration, since, although congestive and hemorrhagic phenomena predominate in the symptoms,

degenerative lesions present themselves first in the anatomical changes.

There does not exist, however, any lesion truly pathognomonic of yellow fever, although the changes of yellow fever in their entirety constitute, as Jaccoud has said, "an anatomical criterion more clear and better defined than that of the majority of infectious diseases."

I procured the material for my studies partly at the Lazaretto of the Island of Flores, the quarantine station of Montevideo, where a small laboratory was set up last summer, and partly in the hospital of San Sebastian at Rio.

When I thought of devoting myself to the study of yellow fever, Sternberg and also the majority of the medical men of Brazil thought they had to deal probably with a local infection, seated principally in the stomach. In that organ, according to them, the infectious agent, as yet unknown, elaborated a toxic substance, which, absorbed into the blood, gave rise to the general symptoms characteristic of yellow fever.

The recognition and the isolation of the specific agent of yellow fever must be considered as the most difficult undertaking yet presented to the patient investigation of bacteriologists.

The cadavers of the victims of yellow fever are either sterile or they are found to be invaded throughout by certain species of microbes, as the streptococcus, the staphylococcus pyogenes, the coli bacillus, the proteus, etc., which cannot be considered as the cause of the disease; in a word, they show a mixture of microbes, the isolation and the classification of which require a total of work which makes systematic and careful investigation impossible.

I owe the chance of the discovery of the microbe of yellow fever to the second case of the disease which presented itself to me at the Island of Flores. This case, though it showed a mixture of various microbes, had, in a state of relative purity, the specific microbe, to which I have given provisionally the name of "bacillus icteroides," because yellow fever is known also under the name of typhus icteroides.

I have said, "in a state of relative purity," because yellow fever is the prototype of the diseases of mixed infection. I have never found the "bacillus icteroides" alone in the autopsies I have made. It has been associated always with

the micro-organisms previously referred to, or among the numerous species of common microbes, or it has been impossible to find it because the other microbes, having entered the organism in its train, have ended by impeding its evolution, and have even caused it to disappear entirely.

The "*bacillus icteroides*" must be sought for in the blood and in the tissues, and not in the gastro-intestinal tube, in which, contrary to what might have been supposed *a priori*, I have never encountered it.

In reality, in yellow fever, as in typhoid fever, there takes place in the digestive tube an extraordinary multiplication of the coli bacillus, which is found there in a state of almost absolute purity.

Upon the result of my investigation I will say that the isolation of the specific microbe of yellow fever is possible in only fifty-eight per cent. of the cases.

The reasons for this are easy to understand. Before all, in the beginning of the disease, the "*bacillus icteroides*" multiplies very little in the human organism, a very small quantity of its toxin being sufficient to provoke in man the worst type of the disease.

In the second place, the toxin, whether by itself or indirectly through the profound lesions it causes, especially in the digestive mucous membrane and in the liver, facilitates in an extraordinary manner every sort of secondary infection.

According to my investigations, the "*bacillus icteroides*" is found in the circulating blood and in the tissues; the germ of yellow fever does not reside in the digestive tube, and its poison, instead of being absorbed through the intestinal walls, is fabricated in the interior of the organs and in the blood.

Morphologically, this bacillus does not present, at first sight, anything characteristic. It is a little rod, with rounded extremities, united, at best, by pairs in cultures and in groups in the tissues, from two to four micromillimetres in length, and generally two or three times longer than it is broad. It is sufficiently polymorphous.

Investigating it in the tissues does not give good results, unless the death of the patient occurs without secondary septicaemia.

Even in the cases that give the best results from the bacteriological examination, it is not easy to place the bacillus in

evidence in sections of the tissues, on account of its extremely small number. In spite of this, by using the utmost care, one can find it in the organs, united usually in small groups and situated always in the minute capillaries of the liver, the kidneys, etc.

The best way to demonstrate not only its presence, but also its special tendency to arrange itself in small groups, preferably in the blood capillaries, consists in placing in the incubator, at 37° C., for twelve hours, a fragment of the liver taken from a fresh cadaver, in order to favor the multiplication of the specific microbe. The yellow-fever bacillus grows sufficiently well in all the ordinary culture media. In common gelatin it forms rounded colonies, transparent and granular, which, during the first three or four days, present an aspect analogous to that of leucocytes.

The granulation of the colony becomes more and more pronounced, appearing ordinarily as a nucleus, central or peripheral, completely opaque; in time the whole colony grows entirely opaque. It never liquefies gelatin.

In beef bouillon the bacillus grows quickly, without forming either pellicles or deposits.

On blood serum, solidified, it grows in a manner almost imperceptible.

Cultures on agar-agar represent for the "*bacillus icteroides*" a means of diagnosis of the first order, but the demonstration by this means of diagnosis is efficacious only under certain determined conditions.

When the colonies grow in the incubator, they present an appearance that does not differ from that of the majority of the other species of microbes; they are rounded, of a slightly iridescent gray color, transparent, even in surface, and regular in outline.

If, instead of causing the colonies to grow in the incubator at a temperature of 37° C., they are allowed to evolve at a temperature of from 20°-22° C., they appear like drops of milk, opaque, projecting, and with pearly reflections; that is to say, they are completely distinct from those grown in the incubator.

These different modes of evolution can be used for diagnosis by exposing cultures, first, for from twelve to sixteen hours to the temperature of the incubator, and afterwards for other twelve to sixteen hours to the temperature of the air.

This done, the colonies show themselves to be constructed with a flat central nucleus, transparent and azure, having a peripheral circle, prominent and opaque. This peculiarity, which may be considered specific, may be made evident in less than twenty-four hours, serving thus to establish the bacteriological diagnosis of the "bacillus icteroides."

Apart from this morphological characteristic, which suffices of itself to differentiate the microbe of yellow fever from all others previously known, the "bacillus icteroides" is endowed with some interesting biological qualities.

It is a facultative anaerobe, and does not resist the Gram stain; it ferments insensibly lactose, more actively glucose and saccharose, but is unable to coagulate milk; it does not produce indol, and is very resistant to drying; it dies in water at 60° C., or after being exposed for seven hours to the solar rays, and lives for a long time in sea-water.

The microbe of yellow fever is pathogenic for the greater number of the domestic animals. Few microbes have a pathological dominion so extended and so varied. Birds are completely refractory, but all the mammiferous animals upon which I have experimented have shown themselves more or less susceptible.

But of all the animals, that which lends itself best to showing the close analogy, anatomically and nosologically, between experimental yellow fever and human yellow fever, is the dog.

The virus should be injected into a vein. The morbid process that results manifests itself almost immediately, with a violence of symptoms and an assemblage of lesions which recall the picture, clinical and anatomical, of human yellow fever.

The lesions found after death are extremely interesting, as they are almost identical with those observed in the human cadaver.

Attention is called, before everything, to the intense fatty degeneration of the liver. The hepatic cell, examined in a fresh state with a little osmic acid, appears completely turned into fat, as it is in human victims of yellow fever; the yellow-fever toxin, as we shall see later, is a true specific poison to the hepatic cell, as are phosphorous and arsenic. A complete fatty degeneration of the liver may be effected by injecting directly into it,

through the abdominal parietes, a fresh culture of the specific bacillus.

The kidney shows a severe fatty degeneration, accompanied by lesions of acute parenchymatous nephritis, which may be considered the direct causes of the anuria and the uræmic intoxication.

The digestive apparatus shows lesions of hemorrhagic gastro-enteritis as intense as those caused by poisoning with cyanide of potassium. They are completely analogous to those in man, though more grave.

A bacteriological fact of great interest in the yellow fever of the dog is, that in the majority of cases the "bacillus icteroides" is found in the blood and the organs in variable quantity and in a state of absolute purity; at times it is found associated, as in man, with the coli bacillus and the streptococcus.

As the tendency to secondary microbial infections has been proved even in the yellow-fever intoxication of the dog, provoked with a pure culture, filtered, it must be concluded that the yellow-fever poison, whether by itself or whether through the alterations it produces in the different viscera, and especially in the liver—which, as is well known, should be considered the organ of defence against microbes—favors in the dog secondary infections, having their point of departure in the intestinal canal.

This is an important point of resemblance between the yellow fever of the dog and that of man.

From the results of the first part of the investigations relative solely to the comparative morphology, biology and pathology of the "bacillus icteroides," we can deduce some fundamental conclusions concerning the etiology and the pathology of the yellow fever of man.

Yellow fever is, then, an infectious disease, due to an organism well defined and susceptible of being cultivated in the common artificial nutritive media.

This micro-organism, which I have designated provisionally with the name of "bacillus icteroides," can be isolated, not only from the cadaver, but also during the life of the yellow-fever patient.

Its isolation presents, generally, difficulties—sometimes invincible—due, in part, to the constant presence of secondary infections, and in part to the relative scarcity of the organism in the body.

These secondary infections, due almost

always to certain species of microbes, as the coli bacillus, the streptococcus, the staphylococcus, the proteus, etc., may appear in the organism long before the death of the patient, which is often attributable to their action rather than to that of the "bacillus icteroides."

It is probable that the protean character of yellow fever in man may be due to the nature and the mode of evolution of these secondary infections.

Yellow fever progresses in cycles. At first the specific microbe is very scarce in the organs, and it is only at the end of the disease cycle, whose duration may be established as between seven and eight days, that the microbe multiplies resolutely and suddenly invades the entire organism, accompanied almost always by other microbes, probably of intestinal origin.

The "bacillus icteroides," once in the organism, not only determines a general intoxication, but also produces specific alterations, which have their seat of election, above all, in the kidneys, the digestive tube, and the liver.

As the renal lesion is one of the first, and as the anuria it provokes establishes itself promptly, to it may be attributed an influence not to be despised in the evolution and termination of the disease.

The patient with yellow fever is, in reality, menaced by three imminent dangers at the same time, and the bacteriological examination may show, with sufficient exactness, the principal cause of death:

1. It may be attributed chiefly to the specific infection, when the bacillus is found in the cadaver in sufficient quantity and in a state of relative purity. This is seen solely in those cases that complete their morbid cycle.

2. It may be considered as produced by the secondary septicæmia, supervening in the course of the disease, when the cadaver offers cultures, almost pure, of other microbes.

3. It may be attributed, in great part, to the renal insufficiency, when the cadaver is almost sterile and when the quantity of urea in the blood is very high and death comes on before the disease has terminated its normal cycle of evolution.

It is difficult to pronounce, during life, upon the respective importance of the uræmic and of the specific symptoms. The frequency of the complication of re-

nal insufficiency is, without doubt, the chief cause which prevents the adoption of a specific thermic type for yellow fever.

The "black vomit" is due to the action of the gastric acid upon the extravasated blood in the stomach. The vomiting itself is directly provoked by the specific emetic action of the toxins of the "bacillus icteroides" circulating in the blood.

The "bacillus icteroides" possesses morphological characteristics so marked that it can be distinguished with much ease from all the other microbes known until now. Once isolated, whether from the cadaver or from the patient, its exact bacteriological diagnosis does not require more than twenty-four hours.

The disease may be transmitted experimentally even by the respiratory tract to rabbits and guinea-pigs. The bacteriological examination of these cases shows, at least, the existence of a toxic process identical with that which takes place in man. It is then possible that the contagion of the virus of yellow fever may be effected even by means of the air, which is in accord with the dominant opinions in this respect.

The virus of yellow fever possesses three chief pathogenic properties, which join to give it a peculiar physiognomy that may be considered specific:

1. The statogenous property, which acts with greater intensity the higher in the zoological scale the animal experimented upon is. The jaundice, which appears in general when the illness is advanced, is due, in large measure, to the anatomical alterations of the liver, which constitute a mechanical obstacle to the free course of the bile, and thus favor its reabsorption by the lymphatics.

2. The congestive and hemorrhage-producing properties which, in spite of being common to other varieties of virus, constitute a salient, specific characteristic, since to them are due not only the classic black vomit and the various other hemorrhages from the mucous membranes, but also the vascular congestions that are the chief cause of the pathognomonic pains of yellow fever—headache, backache, liverrache.

3. The emetic properties, which, even if they are not so closely connected with the yellow-fever virus as are the preceding manifestations, impress, however, upon this virus, by the rapidity, intensity and frequency with which they manifest them-

selves in man and the superior animals, a very particular pathogenic character that distinguishes it easily from all others hitherto known.

On account of the numerical scarcity ordinarily of the "*Bacillus icteroides*" in the human organism, and the violence of the symptoms that occur immediately after the intravenous injection of a culture relatively small, we must suppose the existence of a specific poison, extremely active. We will occupy ourselves, then, with this poison, which is obtained, like that of diphtheria, by simply filtering cultures in broth of the "*Bacillus icteroides*," twenty to twenty-five days old. The yellow-fever poison tolerates almost with impunity heating to a temperature of 70° C., but the heat of ebullition weakens it sensibly.

If the sterilized culture with ether is employed instead of the filtered culture, the toxic power is sensibly augmented.

In the dog the toxin reproduced the same symptoms and the same lesions we have described in speaking of our experiments made with the virus. The bacteriological examination showed the existence of mixed infections, due, as always, to the coli bacillus, or the streptococcus, or the staphylococcus.

The cat is the most resistant animal I have yet made experiments upon.

In the goat the toxin produced exactly, with the exception of the vomiting, the same lesions that have already been noted in the dog and in man.

The horse is very sensitive to even minute quantities of the toxin. An autopsy upon the body of a horse which died from the effects of the toxin showed great swelling of the spleen, a slight degeneration of the liver, nephritis, albuminuria, and some foci of enteritis.

These are the experiments the most important and the most convincing, for the reason that they fix in a definite manner the specific character of the microbe I have discovered, and contribute more than anything else toward a revelation of the secret mechanism of its action upon man.

Up to the present time, almost every sort of means has been tried in order to transmit yellow fever, experimentally. These attempts gave no results, which explains why for many years the conviction has prevailed in the United States that this terrible malady was not contagious.

A perfect explanation of the surprising failure of these experiments is to be found in the fact that the black vomit was commonly believed to contain the virus of yellow fever, and this was consequently used in trying to communicate the disease.

Now, we have seen that the "*Bacillus icteroides*" not only does not have its seat in the stomach, but also, even when it is found by chance in that organ, it is because it has been drawn along by the blood, and is found consequently in a condition of extreme dissolution.

My experiments upon man reach the number of five.

For reasons easily understood, I have not used living cultures; but simply cultures in broth, from fifteen to twenty days old, filtered with the Chamberland filter, and sterilized, moreover, with the greatest caution by a few drops of formic aldehyde.

In two of the individuals I tried the effect of sub-cutaneous injections, and in the other three that of intravenous injections. These fortunate experiments, though few in number, are sufficient to illuminate, in a manner un hoped for, all the pathogenic mechanism, so obscure and so badly interpreted until now, of yellow fever.

The injection of the filtered culture in doses relatively small reproduces in man typical yellow fever. The fever, the congestions, the hemorrhages, the vomit, the fatty degeneration of the liver, the headache, the backache, the nephritis, the anuria, the uræmia, the jaundice, the delirium, the collapse—in fine, all that conjunction of anatomical and symptomatic elements which constitute, by their combination, the indivisible basis of the diagnosis of yellow fever, I have seen unroll before my eyes, thanks to the potent influence of the yellow-fever poison made in my artificial cultures. This fact not only represents very valuable evidence in favor of the specific nature of the "*Bacillus icteroides*," but it establishes new grounds for the etiological and pathological conception of yellow fever.

Eliminating thus the dominant theory, which presented the digestive canal and, above all, the stomach, as the focus of the disease, solely because the gastro-intestinal phenomena have attracted, until now, most vividly, the attention of the student of disease, demonstrating thus that all these imposing phenomena are

due to the specific poison, fabricated by the microbe which circulates in the blood, yellow fever enters immediately the same group of diseases in which I have for some time placed another great morbid process, which, previous to my investigations, had always been ill understood. I refer to typhoid fever.

All the symptomatic phenomena, all the functional alterations, all the anatomical lesions of yellow fever, are but the result of the action, eminently steatogenic, emetic, and hæmolytic, of the substance manufactured by the "*bacillus icteroides*."

It is justly on account of its general symptoms, its characteristic ataxo-adyamic manifestations, its tendency to hæmorrhages, its jaundice, etc., that yellow fever has been compared to the poisoning caused by the venom of certain serpents.

Another point of contact between the two morbid processes consists in the hæmatogenic gastro-enteritis, which, in cases of poisoning by venom, is attributed erroneously, even to-day, to a species of "the force of elimination of the organism."

Now that we have eliminated the way of ingress of the specific microbe and the seat of election, entirely arbitrary, assigned to it in the digestive tube according to old-fashioned ideas, let us see by what route this microbe penetrates into the organism in order to manufacture its poison, and let us say at once that it is a point sufficiently difficult to establish.

In countries where the yellow fever exists no evidence has yet been collected sufficiently significant to establish the transmission by water. On the other hand, a great number of facts exist which should speak strongly in favor of transmission by the air.

The only example always cited by authors, referring to the diminution of the yellow fever in Vera Cruz since that city was provided with good drinking-water, can have only a relative value, as have all the affirmations of this kind.

There is too exclusively a tendency to attribute to the realization of a single hygienic measure the sanitary improvement of a city. It concerns, almost always, on the contrary, a series of hygienic improvements that have, of a necessity, preceded or accompanied it.

For the rest, the tenacious resistance to desiccation and to water I have found in the "*bacillus icteroides*" authorize me to

admit that the diffusion of the virus of yellow fever can take place as well by air as by water. The experiments on animals show that infection by the respiratory tract is possible.

With respect to the mechanism of infection by the way of fluids, a fact beyond doubt is that when the epithelium of the digestive tract is intact, in general it does not permit the entrance of any sort of pathogenic germ. It should be remembered, notwithstanding, that, in countries where the yellow fever exists, the slightest disorder of the digestive functions, the abuse of alcoholic and iced drinks and of fruits, etc., above all, by new-comers, constitute, as all of them causes of general depression, just so many factors to determine at once the entrance of yellow fever upon the scene.

The marked tendency to lesions of the liver in hot countries would represent then, not only one of the conditions that predispose most readily to yellow fever, but, when this has once been established, would be the chief cause of those secondary infections which impress at times a physiognomy so complex upon the bacteriological result of yellow fever and which contribute undoubtedly in a notable manner to the increase of the mortality, already horrible, of this disease.

The "*bacillus icteroides*," whether by the effect of its specific poison, or whether through the grave hepatic lesions which are its most immediate consequence, favors at a given moment the entrance into the organism of septic microbes, which not only end the disease much before the specific agent could do it, but are also prejudicial to the latter, invading at once its domains, suppressing its vegetative faculty and even its vitality.

It is on account of this that these phenomena of microbic antagonism between yellow-fever bacillus and the micro-organisms of septic infections, instead of being useful to the patient, tend to hasten his death.

There is another curious bacteriological phenomenon of immense value in the epidemiology of yellow fever; the marine propagation of this disease is now completely established, the cause of which we must seek, guided by the knowledge we have acquired concerning the biology of its specific microbe.

This behavior of yellow fever on ships differs singularly from that of another

grave epidemic disease—the cholera. The latter, once introduced on board, causes a veritable explosion, attacking rapidly, one may almost say, all it ought to attack.

The gravity of this explosion varies according to the quantity and the energy of the cholera vibrios and the predisposition of the subjects; but this, as it were, act of presence once accomplished, the cholera vibrio does not seem to find in the ordinary nautical conditions a soil very favorable to its existence. Failing this intermediary between man and the cholera agent, above all if disinfection is well carried out, the disease dies out.

Yellow fever, on the contrary, once established on a ship, persists long and tenaciously, keeping itself especially in the bilges, holds, store-rooms, and finally in every narrow and confined place. It is generally admitted that old and worn ships are the very worst for service with countries in which yellow fever is epidemic. All students of naval hygiene consider as types of "the yellow fever ship" those ships badly ventilated, with small hatches and air ports, in which vitiated air stagnates above and fetid moisture below.

Heat, moisture, darkness, and want of ventilation seem to be the best co-efficients for the preservation of the "*bacillus icteroides*"; but we know in the present state of our knowledge it is not possible to attribute any specific value to these diverse co-efficients, since on the whole they are conditions that favor all microbes in general. It is necessary then to seek in some other concomitant element the cause that gives to the nautical habitat of the "*bacillus icteroides*" a form almost specific.

A simple phenomenon which attracted my attention under various circumstances during my studies explained to me in an original manner the probable cause of this mysterious longevity and resistance of the "*bacillus icteroides*" on board ships; it is that the common moulds of the atmosphere constitute the great protectors of the "*bacillus icteroides*."

The microbe of yellow fever, though endowed with a notable power of resistance to the natural chemico-physical agents, cannot be indifferent with respect to the substances necessary for its nutrition.

It is indubitable that during its saprophytic existence outside the body, as for

example in the hold of a ship, it cannot make use of nutritive principles of much value, and this is so certain that many times it is not capable even of multiplying on a layer of common gelatin. If, notwithstanding, a mould begins to grow in its vicinity, the products of the growth of this hyphomycete or the changes caused by it in the surrounding media are sufficient to nourish, vivify, and multiply the "*bacillus icteroides*," which otherwise would have been left to die sooner or later. This favorable property of mould for the "*bacillus icteroides*" can be demonstrated experimentally by placing the spores of any sort of mould upon a layer of gelatin previously sowed with microbes of yellow fever, which, as often happens, has remained sterile.

Scarcely has the mould begun to grow when there appears around it in the gelatin a crown of little punctiform colonies belonging to the "*bacillus icteroides*." Commensurately with the growth of the mould these colonies become more numerous, augmenting rapidly their zone of occupation around the central stem of the mould. After a few days the plates of gelatin on which the mould has grown presents an appearance extremely curious; around each piece of mould the colonies of the "*bacillus icteroides*," which one might have supposed for some time to be dead or at least incapable of growing, form, as it were, constellations, the more numerous the nearer they happen to be to the point occupied by the mould. It would seem, then, that mould possesses a species of radius of influence, within which only is the evolution of colonies of yellow fever bacilli possible. This radius of influence is more or less extended according to the variety of the mould and the space it occupies, but it is always perfectly regular, uniformly distributed, and equidistant from the center, represented, as I have said before, by the stalk of the fungus. Outside of this radius of influence, which is always clearly limited, the evolution of the microbe colonies ceases abruptly and the rest of the gelatin remains sterile unless a new spore gives rise to a new mycelium, which finds itself promptly surrounded by a new pullulation of *icteroides* colonies.

It is very probable that this faculty constitutes a specific characteristic common to all moulds in general, since the six species I have accidentally isolated from the

atmosphere of the laboratory have all shown themselves capable, though in different degrees, of favoring the revivification and multiplication of the *icteroides* microbe, which, without this condition, would not have been able to unfold itself.

It is possible, moreover, that there exists in nature, above all in localities where yellow fever takes hold with great vigor, some mould hitherto unknown and endowed with a favoring power truly specific and even much more notable.

This strange phenomenon of parasitism, which could be defined as the loan of the means of existence, this rare form of microbial saprophytism represents probably the easy acclimatization of yellow fever on ships.

It is in reality very probable that in the holds of badly-ventilated ships it is not only the legendary moist heat, considered from the point of view of its chemico-physical effects, which maintains so long the vitality of the yellow-fever germs accidentally brought there. In the holds of ships, in spite of the moist heat, other pathogenic microbes, as that of cholera and of typhus, etc., do not prosper and remain long active. As far as yellow fever is concerned, the moist heat and insufficient ventilation should be considered then as indispensable conditions for the growth of the moulds, and therefore as indirectly favorable to the vitality of the "*bacillus icteroides*."

This phenomenon of commensalism, analogous to that Metchnikoff marked out some time ago for the cholera vibrio, is in accord with and explains many other well-observed practical facts which form part of the epidemiological character of yellow fever.

We must consider, then, the moulds as natural protectors of the specific agent of yellow fever, as it is owing to their intervention that the latter finds the force to live and multiply itself until a point is reached at which, through the unsuitableness of the nutritive medium or the action of an unfavorable temperature, its existence would be rendered impossible.

The intervention of this factor, so insignificant in appearance, constitutes, notwithstanding, the chief cause of the acclimatization of yellow fever not only on ships but also in certain localities where it seems to find conditions extraordinarily favorable for its sad dominion.

We know in truth that one of the con-

ditions thought indispensable for the evolution of yellow fever, moisture represents, joined with heat, the best element for the formation of the moulds. Moreover it is thought that the unhealthiness of Rio Janeiro is due chiefly to the want of ventilation and to the excessive humidity of the atmosphere.

It is probable, then, that the factor of humidity on board ship, as near the coast and in the interior of countries, represents the principal coefficient of this biological phenomenon.

Moreover, the conspicuous resistance of the "*bacillus icteroides*" to desiccation, which is the chief factor of natural disinfection, and its longevity in sea water, explain sufficiently the easy acclimatization of yellow fever and its tenacious persistence above all in maritime localities afflicted by the presence of its specific agent.

For a year, by work often interrupted, I have had the fortune to bring to this point our knowledge of this terrible infirmity, which represents the most grave and urgent sanitary problem throughout America. The ground covered is without doubt wide, but there remains yet much to go over. We have learned to know the specific agent of yellow fever; we have it in our power; we have studied minutely its life, its habits, its wants, its relations to external agents and to other small organisms; we have revealed the complicated mechanism of all the infinite manifestations which this agent determines in the human organism, and we have finally placed this disease, which a few months ago was a horrible mystery, on the same level as that occupied by the other great infectious diseases.

The advantages to public prophylaxis and to clinical indications which will rise out of these results need not be indicated; the principal base of social defence against diseases is the exact knowledge of their specific causes.

Asiatic cholera, typhoid fever, and many other grave diseases do not inspire now the terror of former days, because science, relying upon the study of their specific agents, can guard against their diffusion and acclimatization by adopting wise sanitary measures and effecting various hygienic improvements—thanks to the good results of which certain cities have been, so to speak, almost resuscitated.

But apart from the prophylactic ideal, which, from the hygienic point of view,

holds the greater importance, because it is always better and easier to prevent diseases than to cure and drive them out when they have once manifested themselves, there exists another ideal—the therapeutic ideal.

Well, then, given the nature of the process we have just studied, I do not think it difficult for even this ideal to be realized, and I entertain a well-founded faith that it will soon be possible to apply to man a specific preventive and curative treatment of yellow fever.—*Medical Record*.

Review of Diseases for August, 1897 (Sixty-nine Counties Reporting).

Eighty-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious disease to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

MEASLES—Greene, 10; Johnston, 1; Orange; Surry, epidemic.

WHOOPIING-COUGH—Brunswick, a good many; Catawba, numerous; Orange; Pender, 10; Perquimans, 12; Person, a few; Stokes, 20; Surry, 18; Wayne, 3—9 counties.

SCARLATINA—Iredell, sporadic; New Hanover, 2; Northampton, 1; Robeson, 2.

DIPHTHERIA—Davie, 1, quarantined; Iredell, sporadic; Surry, 12, scattered, attempts to isolate being made; Vance, 2, quarantined and apartments disinfected, no spread; Wake, 2.

TYPHOID FEVER—Alexander, 7; Ashe, 3; Beaufort, 10; Brunswick, 1; Buncombe, many; Burke, 5; Cabarrus, 6; Catawba, many; Chowan, a few; Clay,

10; Cleveland, 5; Columbus, 3; Cumberland; Davidson, 11; Edgecombe, 10; Franklin; Gaston; Greene, 2; Haywood, 8; Henderson, 1; Iredell, 12; Jackson, 4; Macon, 18; Madison, 6; Martin, 1; Mitchell, 2; Montgomery, 1; New Hanover, 6; Northampton, numerous; Orange; Pasquotank; Pender, 5; Perquimans, 9; Polk, 3; Randolph, 5; Richmond, a few; Robeson; Rowan, 4; Rutherford, a few; Sampson, many; Stanly, in all parts; Stokes, 3; Surry, 22; Swain, 2; Transylvania, 3; Union, 10 or 15; Vance, a few; Wake, 10, in several parts; Washington, 3; Watanga, 10, in all parts; Wayne, 8; Wilkes, 4; Yancey, a few—53 counties.

MALARIAL FEVER—Alexander, along the larger water-courses; Bertie; Chowan; Cumberland; Dare; Davidson; Davie, in all parts; Durham, in nearly all parts; Forsyth, in most parts; Franklin; Gaston; Greene, in all parts; Iredell; Lincoln, in all parts; Martin, mild, in all parts; Montgomery; New Hanover, in all parts; Northampton; Orange, in all parts; Pasquotank; Perquimans, in all parts; Person; Richmond; Robeson, in all parts; Rockingham; Rowan, in most parts; Sampson; Stanly, in all parts; Union, in all parts; Warren; Washington, in all parts; Wilkes—32 counties.

MALARIAL FEVER, HEMORRHAGIC—New Hanover, 2.

MALARIAL FEVER, PERNICIOUS—Cumberland, 1; Washington, 1.

DIARRHOEAL DISEASES—New Hanover.

CHOLERA, IN HOGS—Columbus; Jackson; Johnston; Washington.

CHOLERA, IN CHICKENS—Lincoln.

ROUP, IN CHICKENS—Cherokee.

The following counties state that there are no diseases to be reported: Alleghany, Bladen, Halifax, Wilson.

No reports have been received from the Superintendents of Health of Anson, Chatham, Granville, Guilford, Hertford, Lenoir, McDowell, Moore, Nash, Onslow and Pitt.

**Summary of the Mortuary Reports for August,
1897 (Nineteen Towns).**

Only the towns from which certified reports are received are included:

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	55,967	43,417	99,384
Aggregate deaths, ..	59	86	145
Representing annual death rate per 1,000	12.6	21.4	17.5

<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever...	3	0	3
Malarial fever	4	14	18
Whooping-cough.	0	6	6
Pneumonia	2	0	2
Consumption ..	3	11	14
Brain diseases.	3	8	11
Heart diseases ..	6	2	8
Neurotic diseases	1	1	2
Diarrhoeal diseases.	14	8	22
All other diseases ..	21	35	56
Accident	2	1	3
	<hr/>	<hr/>	<hr/>
	59	86	145
Deaths under five years	19	31	50
Still-born.....	6	12	18

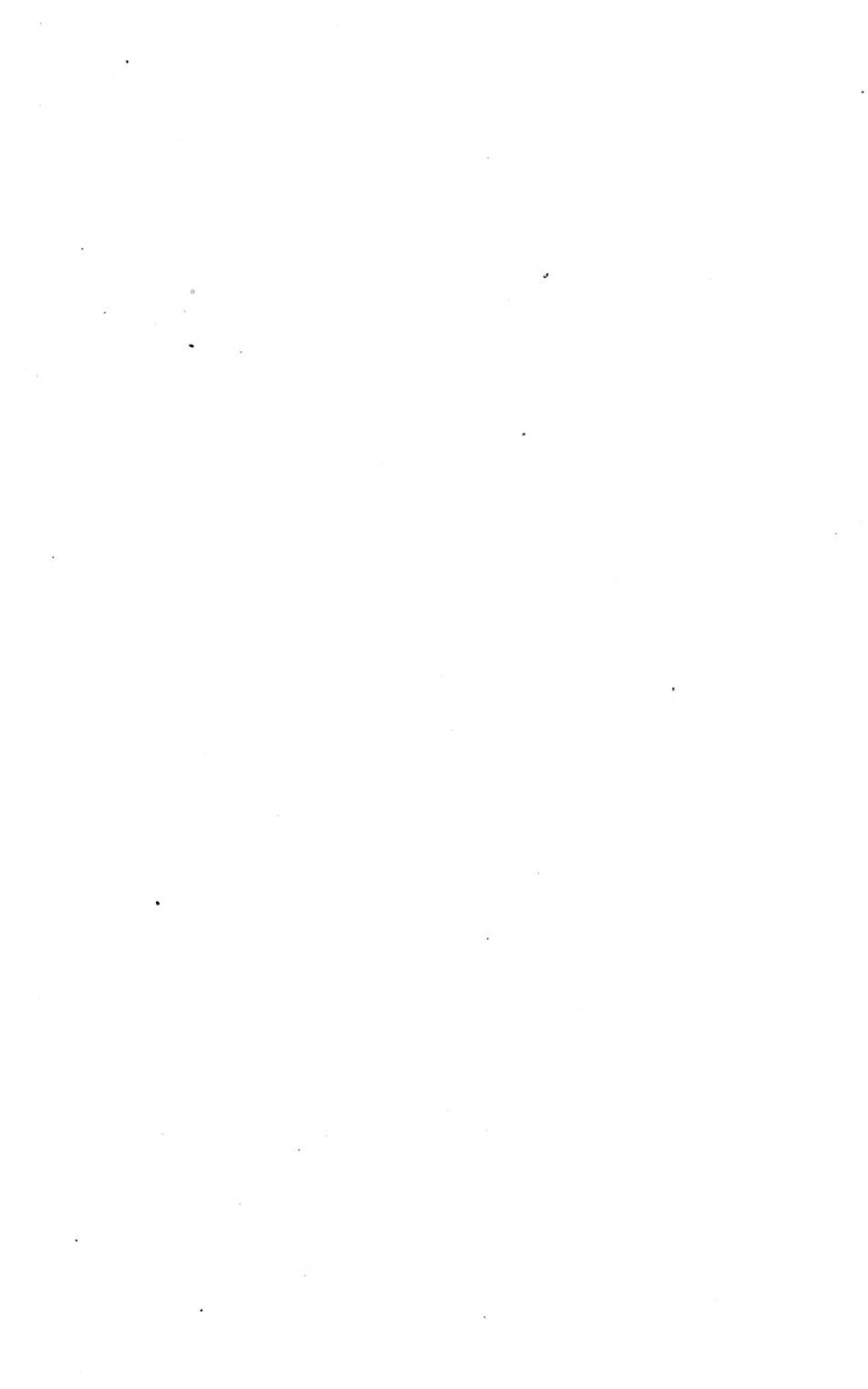
Mortuary Report for August, 1897.

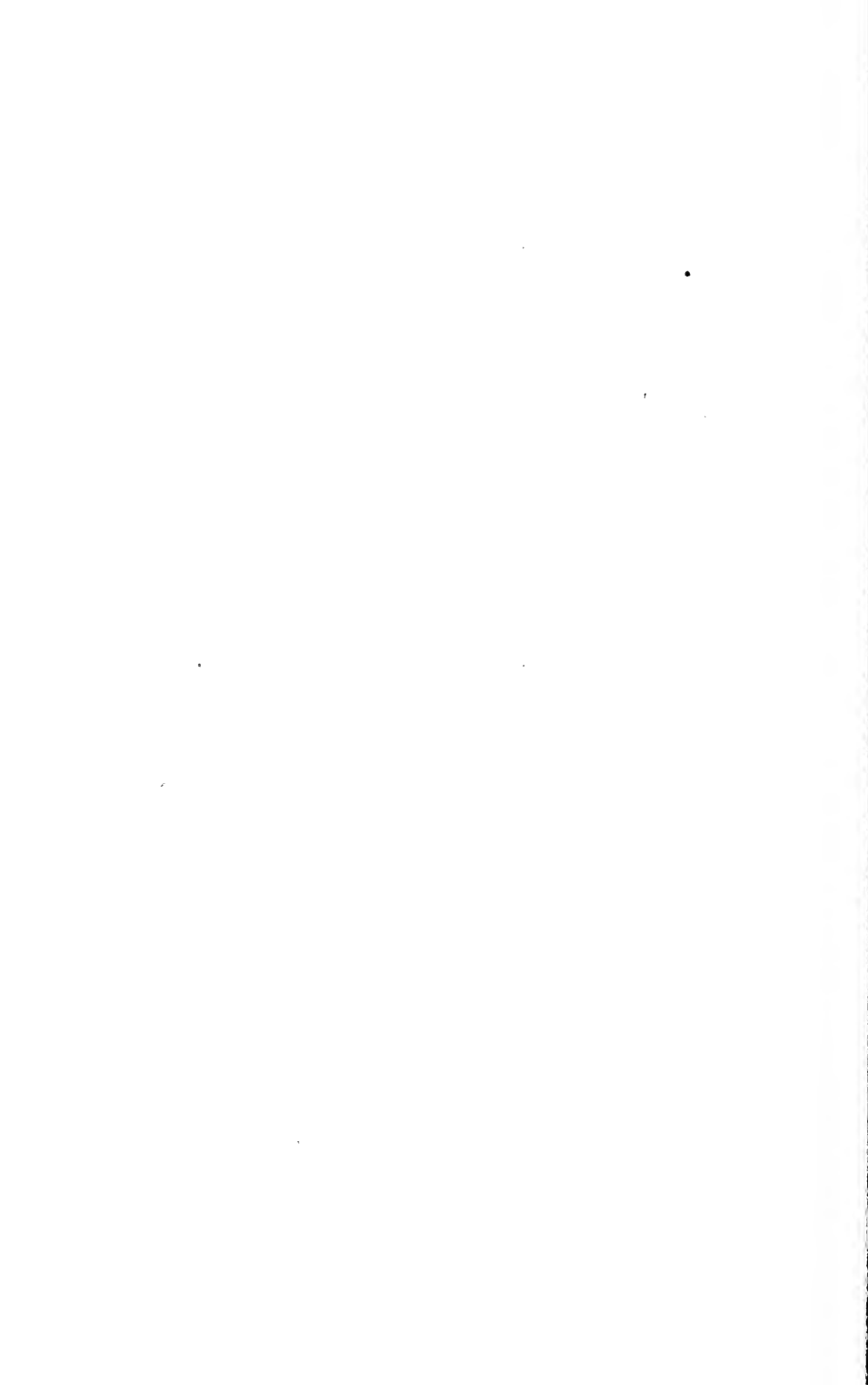
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N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. R. A. Freeman.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. George I. White.
Beaufort	Dr. Joshua Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunston.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. I. Watson.	Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. W. A. Simmons.
Cabarrus	Dr. Robert S. Young.	Moore	Dr. Gilbert McLeod.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. J. C. Shepard.
Carteret	Dr. F. M. Clark.	Northampton	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. D. McD. Yount.	Orange	Dr. D. C. Parris.
Chatham	Dr. J. B. Matthews.	Paullico	No Board of Health.
Cherokee	Dr. J. F. Abernathy.	Pasquotank	Dr. J. E. Wood.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. Frank W. Brown.
Craven	Dr. J. W. Duguid.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. Wm. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John W. Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. E. B. Harris.
Durham	Dr. John M. Manning.	Sampson	Dr. John A. Stevens.
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. D. P. Whitley.
Forsyth	Dr. E. F. Strickland.	Stokes	Dr. W. L. McCaless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Waltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. T. L. Booth.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. W. J. Richardson.	Wake	Dr. P. E. Hines.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. G. Council.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. W. J. Jones.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. N. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.





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BULLETIN

OF THE

North Carolina Board of Health.

*Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.*GEO. G. THOMAS, M. D., *Pres.*, Wilmington.

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W. H. HARRELL, M. D., Williamston.

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A. W. SHAFFER, SAN ENG, Raleigh.

VOL. XII.

OCTOBER, 1897.

No. 7.

THE HEALTH CONFERENCE.

This annual meeting of the Board "with the people" occurred at Goldsboro on the 14th, and in spite of several apparently threatening drawbacks—the absence from sickness of three members of the Board, and of a fourth on account of urgent surgery incident to a boiler explosion, and a popular theatrical performance on the same evening being the chief—was a success. In order to show the impression made upon the people, to interest and instruct whom was the object of the meeting, we reprint almost entire the account given next day in the *Goldsboro Daily Argus* by the editor, the genial and talented John E. Robinson, to whose sympathy and valuable aid, so cheerfully rendered, in writing it up beforehand in his paper, the success of the Conference was largely due. We make our acknowledgments to him, to Mayor Hill, who was an interested and active helper in various ways, including that of presiding, at our request, at both sessions in a most acceptable manner, and to the kind people of Goldsboro, who received us cordially and lent us their ears. The account is as follows:

"The meetings in the courthouse in this

city of the State Board of Health yesterday afternoon and evening were largely attended and were entered into with such spirit and interest conjointly by the numerous citizens in attendance and the distinguished members of the Board present, that both were free in their expressions of mutual pleasure over the success of the Conference.

"Owing to illness, the President of the Board, Dr. Thomas, of Wilmington, was detained at home, and, by request, Mayor Hill presided. The Board was welcomed on behalf of our citizens by the editor of the *Argus*, who was responded to on behalf of the Board, in the absence of its President, by its Secretary, Dr. Richard H. Lewis, of Raleigh, in his characteristic graceful manner.

"Several numbers on the published programme had to be omitted on account of absence of members.

"Prof. Venable was the first to entertain the Board and the audience. His subject was Bread, and we are sure that all who heard him feel indebted to him for much useful and essential information as to what constitutes good bread, and how to make it.

"The next paper read was that of Dr.

Lewis on "The Air We Breathe," and it was so comprehensive and instructive, and bears with such vital importance upon the life of every man, woman and child that we devote our entire front page this afternoon to its publication.

"The evening session opened with Dr. Westray Battle's splendid paper on "Mental Healing, or Christian Science." It was a literary as well as scientific and ethical feast, and we hope to have the pleasure of giving it publication, if we can persuade Dr. Battle to yield his graceful modesty just long enough for us to get possession of the manuscript.

"The new disinfectant, formaldehyde, then came in for exhibition and discussion, after which the question of sewerage was taken up for general discussion. Col. Shaffer, the skilled engineer of the Board, entertained, delighted and instructed the large audience with forceful argument why Goldsboro should have sewerage, and so did other members of the Board."

We regret very much that the other papers and addresses promised, on "Vaccination, How Can It be Best Secured," by President Thomas; "Sanitation of Small Towns," by Dr. Harrell; "Typhoid Fever," by Dr. John Whitehead, members of the Board, and the "Demonstration of the Serum Diagnosis Test of Typhoid Fever," by Prof. Richard H. Whitehead, M. D., of the University, could not be given, for, knowing the authors, we feel sure that they would not only have been entertaining, but instructive as well. And, too, while he had not promised any paper or set address, the absence of Dr. O'Hogan was a great loss. He is always the bright particular star of every gathering of medical men in North Carolina, and as charming in his delightful talks to the laity as to his brethren. We trust that he and his confreres on the sick list may speedily recover and take away from the Board the reproach that now rests upon it as a *health*

organization, and which makes the jocose to twit us with "physician, heal thyself."

In conclusion, we desire to publicly return the thanks of the Board (as has already been done officially) to Prof. Venable, long a most active and useful member of the Board, for his disinterested kindness in agreeing, at our request, to help us out, and for the very valuable aid he rendered in his excellent and interesting address on "Bread." A strong man that you can count on in time of need is a great comfort.

COUNTY AND TOWN HEALTH OFFICERS.

In one of our counties a conflict has arisen between the County Superintendent of Health and a municipal medical health officer as to whose duty and right it is to abate nuisances within the corporate limits.

The County Superintendent appealed to the President of the Board, submitting these questions:

"Does the abatement of nuisances within municipal boundaries devolve upon the health officer of the town, or the County Superintendent of Health?"

"Does the proviso in section 9 of the Act relating to the Board of Health prevent a County Superintendent of Health from interfering in any way in matters affecting the public health within the municipal boundaries of an incorporated town?"

"Does not section 22 of the Act in relation to the Board of Health give the County Superintendent of Health full power and authority to act in his official capacity to abate nuisances within the boundaries of a municipality when the municipal authorities have appointed a health officer for the town?"

The President referred these inquiries to the Board for its decision, adding the following:

(a) "Does not section 9 of the Act in relation to the Board of Health *exclusively* apply to quarantine and disinfection, and punishment for failure to perform the duties incident thereto?"

(b) "Does not the proviso in section 9 specifically apply to quarantine, disinfection and punishment of the health officer of a town for failure to discharge his duties?"

(c) "Does not section 22 award the County Superintendent of Health full and exclusive power to abate nuisances 'when- ever and wherever' they exist?"

Section 9 relates solely to quarantine and disinfection in connection with certain-named communicable diseases. The proviso referred to reads as follows:

"*Provided, however,* that in any city or incorporated town having a regularly-appointed medical health officer, who is a member of the County Board of Health, the duties assigned in this section to the County Superintendent of Health shall be performed by the said medical health officer for the people of his city or town, and he shall be subject to the same penalties," etc.

Section 22, relating to nuisances, does not allude to municipal health officers.

Section 25 reads thus:

"The authorities of any city or town are hereby authorized, not already authorized in its charter, to make such regulations, pay such fees and salaries, and impose such penalties as in their judgment may be necessary for the protection and the advancement of the public health."

The Board, at its meeting in Goldsboro on the 14th, decided that the County Superintendent was clearly authorized, and that it was his duty to abate nuisances in any city or incorporated town having a medical health officer of its own, *unless* the authorities of said city or town had made, under section 25, regulations bearing upon the subject of nuisances, and in-

structed its Secretary to "submit its decision to the Attorney-General for approval or disapproval."

The Secretary has done so, and the Attorney-General has endorsed the ruling of the Board.

REPORTS OF PHYSICIANS TO COUNTY SUPERINTENDENTS OF HEALTH.

The constant complaint from County Superintendents all over the State is, that the physicians will not report to them the diseases occurring in their practice. This ought not to be. We suppose that in most instances in the harassing cares and responsibilities incident to the profession, it is overlooked. In order to remedy this and to remove every excuse for not reporting, unless the expenditure of a few minutes' time and two cents for a stamp can be dignified with that name, we propose to slip into every copy of the Bulletin mailed to medical men in North Carolina (and it now goes to every registered physician in the State), the proper blank for making this report. And we earnestly beg our professional brethren, each and every one, to fill up and mail this blank to his Superintendent regularly and promptly. As the Bulletin will reach its readers about the first of the month, the blank will appear at precisely the right time. If this is done, the complaint made that the reports from some counties are not fair will be silenced.

THE ASHEVILLE BOARD OF HEALTH.

We are much gratified to learn that the city of Asheville, under a charter granted by the last Legislature, although the power to regulate its own health matters had already been conferred on every city and town "not already authorized in its charter," in section 25 of the Act relating to the Board of Health, has established a

local Board of Health. It is composed of the Mayor, the Chairman of the Finance Committee of the Board of Aldermen, the City Engineer, and four regular practicing physicians. And we are especially glad to know that the Board has designated from its members as Health Officer Dr. M. H. Fletcher. While there are many excellent men in the Asheville profession, we feel sure, knowing Dr. Fletcher, that this is an admirable selection.

Owing to the fact that Asheville is widely and favorably known, and largely patronized as a health resort, particularly by those afflicted by that mortal disease, tuberculosis, a large number of deaths must occur in this floating population. It would, therefore, be manifestly unfair to charge them up to Asheville proper, and so when we come to print the mortuary reports we shall give the deaths among the residents only in the regular table, calculating the death-rate thereon, and in a foot-note give the deaths among non-residents. Under the present more perfect organization we shall expect full and accurate reports.

THE AIR WE BREATHE.

Paper Read at the Goldsboro Health Conference by Dr. Richard H. Lewis, of Raleigh.

What we call the life of any organized being depends upon the proper correspondence or relationship of that being with its environment, at least with certain essential elements in his surroundings. To make a direct application in the concrete, the most manifestly essential of these elements to the life of man are air, water and food, of which the first named is the most immediately important. It has been demonstrated that life can be sustained for more than a month without food, and for several days without water, but only a few minutes without air. In many cases of

drowning, submersion of one minute, in spite of every effort at restoration, has proven fatal, although there are a number of instances of recovery after being under the water five minutes, and in one case as long as fourteen minutes, though this last might be questioned somewhat. Man eats and drinks only a few times daily, but breathes about every three seconds. Indeed, the breath is a synonym of life, and when we come to look into the vital processes, it is easy to understand why it should be. Life is often spoken of as a fire. "The fires of life" is a common expression, used in a figurative sense by the speaker in most instances, probably, but as a matter of fact the fundamental phenomena of what we call life could not be more accurately described in a few words. The illustration has been so admirably given by Prof. Woodbridge, in an address on the "Ventilation of School Buildings," printed in the report of the State Board of Health, of Maine, for 1894-95, that I feel I would do you an unkindness if I did not substitute it for the best I could do. He says:

"For the purpose of our study to-day we shall regard vital energy as a flame, and the body as a furnace, with associated parts for the transformation of heat, or thermal energy, into dynamic or mechanical energy. The fire beneath the boiler imparts most of its thermal energy to the water, transforming the water by blast energy into elastic steam, and that steam gives over a part—a small part—of its energy so gotten to the piston of the engine, and thence it is transmitted through crank and wheel, and belt, and shafting, to the various and scattered points of its final application. The waste between the energy locked in the coal and that to-day made available in the product, is enormous, and at some future time will, perhaps, be regarded as wickedly prodigal.

"In the body the burning, or energy

production, is more nearly at the point of power expenditure, and the process of transformation is so highly effective that in the human or animal machine a pound of fuel in food will produce much more effective energy than a pound of coal burned under a steam boiler.

"There are three requisites to the obtaining of the best result from a boiler fire, the first in the order of importance being a good draught; the second, good stoking; and the third, good coal. The best coal will not burn without an adequate draft. The best stoking will not make a good fire, with the best of coal, without draft. With a strong draft, coal will burn with poor stoking. Inferior coal, with a strong draft and good stoking, may make a hot fire. Of first importance, then, to fire is air; second, stoking; third, fuel quantity.

"The same is true of the body's fire. The prerequisites to the most vigorous vitality are: First, abundance of pure air; second, proper and sufficient exercise; third, the best of food. In this case the air is the physical furnace's draft; the exercise is the stoking; the food is the fuel. And here, also, we find the same order of sequence; first in importance being air in adequate quantity and purity; second, exercise; and third, food quality.

"Coarse and ill-adapted food, with an abundance of pure air and exercise, produce finer specimens of physical vigor than the best of food, with impoverished air for breathing, and without exercise. Compare the robust vitality of a coarsely-fed and even poorly-fed out-of-door laborer with that of the most pampered in diet, breathers of the confined air of luxurious apartments, occasional dainty exercisers in softly-cushioned carriages, and our point is strongly illustrated.

"Without further argument, it must be conceded that that to which is generally given least importance in our thoughts, as compared with the thought given to food

and recreation, is really of the greatest importance to our best vitality. We think more of our eating than of our breathing, and more of the loss of a half-day's recreation than of a whole week's deprivation of pure air. Municipalities will spend money by the million for park ways for the occasional outings of their citizens, and on spread-out beauty which gratifies their pride, the meanwhile condemning as wanton waste the spending of a quarter of such sums on the sanitation of school-houses in which the city's educators and children are breathing for thirty hours of every school week.

"We, some of us, need a revolutionizing of ideas as to what our physical life is; first of all, a chemical product, to which air is an essential element, and for the completeness of which air must be had in freshness and abundance."

It will interest you, I am sure, to know the actual physical facts on which this apt simile is based. In brief, they are as follows: Atmospheric air is composed of oxygen, 209.6 parts per 1,000 volumes; nitrogen, 790; carbonic acid, 0.4; and very minute quantities of ammonia, organic matter, ozone, common salt, and other mineral substances. Of these various elements, the essential one is oxygen. The vital changes which take place in the tissues of the body are largely oxidations. The chemical union of oxygen with their constituent elements, and the formation thereby of new products—more notably carbonic acid—just as the oxidation of carbon in fuel makes carbonic acid. Now, how is the oxygen of the air carried to the tissues? By the red corpuscles of the blood, which exist in enormous quantities, it being estimated that in a man weighing 140 pounds there are two million five hundred thousand millions of them. In the circulation of the blood, according to the physiologists, they pass through the lungs a little oftener than twice in every second,

and in that time expose a surface to the air therein equal to 144 square yards. Absorbing the oxygen from the air in the lungs, they carry it to the tissues and dump it there, so to speak, while the liquid part of the blood loads up with carbonic acid to be thrown off into the air when it reaches the lungs once more. It is evident, therefore, that the air leaving the lungs must have a larger proportion of carbonic acid than the air entering them, and less oxygen.

The necessity of air to life is clear, but what we are interested in this evening is the relation between the air we breathe and health. The effect upon the health may be either negative or positive. Of the former, an insufficiency of oxygen is the chief; there is a lack of fuel, and the vital flame burns low and feebly—the machinery of life runs too slow. But it is on the positive side that we find more to interest us in the various and manifold impurities that are to be found too often in the air we breathe. These impurities are both solid and gaseous. The solid are suspended in the form of dust, to be found particularly in certain trades; living substances, as pollen, etc., but more especially the microscopic plants, known as bacteria, which swarm everywhere and are taken into our lungs with every breath. Fortunately, most of these are innocent, though a limited number are literally the seeds of a corresponding number of diseases. The gaseous impurities are of various kinds, but in the limited time at our disposal I will mention only the most common and the most injurious—carbon dioxide or carbonic acid. This gas, you will remember, is the result of combustion, the oxidation of the tissues, and is thrown off in expiration. It is also produced by combustion in our ordinary gas and lamp lights. As carbonic acid is made by the consumption of oxygen, it is plain that as the former increases in a given amount of air, the latter decreases.

The air expired from the lungs is further vitiated by organic matter thrown off from the system by this channel as well as in exhalation from the skin. It is this which gives the characteristic odor to a close bedroom, occupied by too many people. Of the effect upon the system of air thus vitiated to an excessive degree, the most noted example is the famous Black Hole, of Calcutta. This was a room eighteen feet square, with only two windows, both on the same side, in which the captured British garrison of 146 men was confined for one night. In the morning all were dead but twenty-three. It is, however, the contamination to a far less, but still dangerous, degree that is to be found in many of our homes and school-houses with which we are practically concerned. While the effect of this is not so strikingly manifested as in the instance just cited, it is nevertheless injurious to health, and indirectly the cause of much sickness and many deaths. And the reason for it is plain. A full supply of oxygen is absolutely essential to the proper performance of the vital functions, and if that supply be insufficient—to say nothing of the apparently positively poisonous character of the exhalations from the body—the vital force is reduced, and the power to resist disease is correspondingly diminished. Statistics show that consumption, scrofula, pneumonia, and some other diseases, are far more common among those breathing such an atmosphere than among those having an abundance of pure air. As an illustration of this, Parkes quotes Rossignol to the effect that "previous to 1836, the mortality of the French cavalry horses varied from 180 to 197 per 1,000 per annum. The enlargement of the stables and the 'increased quantity of the ration of air' reduced the loss in the next ten years to 68 per 1,000. In 1862-66 the rate of deaths was reduced to 28½ per 1,000." Quoting other observers, he says: "In Dundee the

ratio of phthisis and other disorders of a similar character, increases with the crowding and the foulness of the air; being at the rate of 3.25 per 1,000 in houses of four rooms and upwards; 5.52 in houses of three rooms; in two-room houses, 6.41; and in one-room houses, 7.44." The deadly typhus, commonly known as jail or ship fever, while a contagious disease, and propagated by direct infection of one case by another, is most markedly influenced in its mortality by over-crowding.

In an epidemic of that disease some years ago in New York, the wards of Bellevue Hospital would not hold the patients, so more than a hundred were put under an open shed in the back yard, it being summer. While there a squall came up, blew down the shed and thoroughly drenched them. Notwithstanding, not a single one died, while the mortality among those in the hospital was about 25 per cent. Lawson Tait, the great English surgeon, who is as conspicuous for his rank heresy in the matter of disease germs as for his brilliant success in surgery, says that he has ascertained that the amount of air his operated cases have materially influences the result—that the mortality was greater whenever he violated his rule of giving each case a whole room to herself. But the evidence is conclusive that the diminution of the air supply increases the mortality, not only among the sick, but the well—in other words, that the death rate is more or less in proportion to the impurity of the air we breathe.

The indications that we are breathing impure air are a feeling of heaviness and inertness, with headache and sometimes nausea. So, when you wake up in the morning with "that tired feeling," don't rush off and buy a bottle of patent medicine, but open the window of your bedroom a little and take deeper draughts of God's pure air, uncontaminated by man or beast.

In our Southern towns, owing to the fact that our rooms are larger, as a rule, than in colder climates, and to the farther facts, that our houses are generally more or less carelessly built, and therefore full of cracks, and that our usual method of heating is the open fire-place or grate, which is a most excellent ventilator, we do not suffer so much from impure air. And this, doubtless, is the reason that consumption is so much less common with us than with our Northern neighbors who live in tight, warm houses, heated by stoves generally. It is a sad fact, that, right here in our beautiful climate, consumption is playing havoc with our colored people—the death rate among them from that disease being now more than three to one among the whites, and it is also true that when once attacked they die much more quickly than the whites. Although the conditions incidental to ignorance and poverty, general uncleanness and the want of proper food and care are largely responsible for this, there is no doubt in my mind that they are rendered more susceptible to infection and less resistant to the disease by breathing the impure air caused by overcrowding, and to a habit they have of sleeping with their heads covered up. It is, however, not alone in such pronounced and tangible cases as these first cited that vitiated air—vitiated chiefly by the exhalations from human beings—gets in its deadly work. It is in a far more subtle and, therefore, dangerous way, because it is generally overlooked, that this slow poison operates. It is by a gradual sapping of the vitality which renders the individual an easy prey to any disease that may come along. This is particularly the case in children. During the period of growth the vital processes are much more active than after maturity, for the simple reason that not only must all the ordinary running expenses of the system, so to speak, be paid,

but a large addition must be made to the surplus fund. In Prof. Woodbridge's illustration of the steam boiler, you will remember that its best work depends upon three things: a strong draught, an abundant supply of oxygen, or, in other words, plenty of fresh, pure air containing its full quota of oxygen; good stoking, exercise; and a sufficiency of fuel of first-rate quality, good food. In this favored land of ours, there are not many children who fail to get plenty of food, of fair quality at any rate, and a mere allusion to their incessant activity shows them to be excellent stokers, but the draught is not free in far too many instances, and, in consequence, their vital fires burn low, and there is a lack of power to properly propel their machinery of life. In my own special line of professional work I often see the most striking illustrations of the bad effects upon the system of an insufficiency of air. A child comes in, and as soon as my glance falls on his pale face, his lack-lustre eye, his open mouth and stupid expression, I am prepared to hear from his mother that he is not thrifty, that he snores at night, and assumes in his restless sleep all sorts of bizarre positions—in order to breathe better—and am morally certain that he is a victim of what we call adenoid vegetations. These are enlargements in the upper part of the throat analogous to the ordinary enlargement of the tonsils which block up the nostrils at the back end and mechanically prevent the free entrance of air.

It is positively exhilarating to see the effect of the removal of these growths—the opening of the draught flue. The pale, feeble, stupid-looking, lackadaisical little invalid promptly becomes the bright-eyed, rosy-cheeked, hilarious, romping boy, and when night comes ceases to be a contortionist and sleeps like the baby he is.

Now, it makes no difference whether the supply of oxygen is reduced by a pos-

itive mechanical obstruction to the inflow of air, as in the above case, or by robbing the air, that freely enters the lungs, by breathing it over and over again. And this latter is what I am particularly aiming at. While, doubtless, in many of our sleeping apartments such want of ventilation obtains as to produce this effect, it is chiefly in our school-houses that we find it. When your child comes home from school pale and listless, perhaps complaining of dull headache, with no appetite and no eagerness for play, you may be sure that his school-room is not properly ventilated, and that he has not gotten the amount of life-giving oxygen that his Creator intended him to have, and which by a law of his being he has a right to demand. In such a case, it is your plain duty to the child God has given you to see that he is not robbed of his rights in this respect. Public opinion is all powerful in our free, democratic country, and if the people of a community protest against the slow poisoning of their children, and insist upon a correction of the defects, it will be done.

But I have detained you too long, and can, therefore, refer only very briefly to the practical subject of ventilation.

According to Parkes, the amount of fresh air to be supplied during repose ought to be:

For adult males, 3,600 cubic feet per head per hour.

For adult females, 3,000 cubic feet per head per hour.

For children, 2,000 cubic feet per head per hour.

For a mixed community, 3,000 cubic feet per head per hour.

Inasmuch as an average room—say fifteen feet square and ten feet pitch—contains only 2,250 cubic feet of air, it is evident that to meet the above conditions additional fresh air must be admitted, and the air vitiated by breathing correspondingly forced out, even where it has only

one occupant. If, however, it be the family bed-room, and occupied by a man, his wife and one child, say, the air must be completely changed four times every hour. This change in the air is what is called ventilation. Time forbids my going into this subject, so I will merely state the practical conclusions as applied to the conditions that obtain with us. They are these: For private houses, I would recommend that when the house is cleaned up in the morning, all the windows should be thrown wide open for the removal of the foul air of the night and the filling of the house with perfectly pure air. Never have anything but an open fire-place in a sleeping room. The ordinary stove, and especially the close kind that is so economical of fuel, is a sanitary abomination. That very fact of its economy of fuel condemns it, for it means that there is no draught to speak of going through it, and the air in the room is not changed as rapidly as it should be. It is far better to add to your blankets, or even to be a little cold, than to be warm—often too warm, and half smothered by carbonic acid. But if you must have a stove, and more than one person sleeps in a room of average size, always—except, perhaps, for a night or two in the bitterest weather—keep one window partially open. If it be so situated as to cause a draught upon the sleeper, fill the open space with cheese-cloth or other porous material, and that, while letting in the air, will prevent a draught.

In the case of school-houses of considerable size, some approved artificial system of heating should be used. In smaller ones, owing to the large size of the room and the enforced distance from the fire of many of the scholars, stoves must be used. But they should be "jacketed" stoves, i. e., stoves with a jacket or envelope around them, so that pure air having been led from the outside through a pipe may

pass between the hot stove and the jacket and be poured into the room warm. This method is simple and reasonably cheap, and should always be used if a better plan be too expensive. Then at every recess the windows should be opened and the air changed in that way too.

I hope you will forgive my trespassing so long upon your patience, but this matter of the air we breathe is a vital one, and one that is sadly neglected, and if I have succeeded in setting you to thinking about it I shall feel no compunction in having bored you.

Review of Diseases for September, 1897 (Seventy-three Counties Reporting).

Eighty-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named:

MEASLES—Pasquotank, 2; Surry, epidemic; Yadkin.

WHOOPING-COUGH—Alamance, in some parts; Columbus, 2; Davidson, 20; Martin, 2; Mecklenburg, 6; Mitchell, 40; Onslow, 6; Pasquotank, 3; Person, a few; Randolph, 5; Robeson, a great many; Stokes 15; Surry, 12—13 counties.

SCARLATINA—Buncombe, 3, quarantined; Davidson, 1; Forsyth, in all parts; Granville, 2; Guilford, 19, strictly quarantined, mill, no death; Mecklenburg, 2; New Hanover, 4; Rowan, 2; Wake, 2—9 counties.

DIPHTHERIA—Buncombe, 3, quarantined; Catawba, epidemic in Cline's township, 15 cases; Davidson, 4; Davie, 2; Edgecombe, 2; Haywood, 5, in upper Figeon country, where occurred an epidemic in 1896, no new cases after middle of month; Mecklenburg, 3; New Hanover, 4; Richmond, 2; Robeson; Rowan, 1; Union, 1; Wake, 1; Yalikin—14 counties.

TYPHOID FEVER—Alexander, 3; Ashe, 4; Beaufort, 7; Bertie, 1; Buncombe, 3; Burke, 2; Cabarrus, 10; Catawba, 3; Chatham, many cases; Cherokee, 1; Chowan, a few; Clay, 2; Cleveland, 2; Columbus, 2; Cumberland, 2; Davidson, 15; Durham, 11; Edgecombe, 5; Franklin, many, in several parts; Gaston, less prevalent than last fall; Greene, 6; Guilford, several; Halifax, 6; Haywood, 12, scattered; Jackson, 10; McDowell, in all parts; Macon, 30; Madison, 1; Mecklenburg, 30; Mitchell, 5; New Hanover, 5; Northampton, some in all parts; Onslow, 3; Orange, several; Pasquotank, 15; Pender, 1; Perquimans, 6; Randolph, 5; Richmond, 7; Robeson, several; Rockingham, some; Rowan, 1; Sampson, 3; Stanley; Stokes, 4; Surry, 16; Swain, in all parts, to a limited extent; Transylvania, 3; Union, several; Vance; Wake, in all parts, Warren, 2; Washington, 3; Watauga, 4; Wayne, 3; Wilkes, in nearly all parts, 6 cases reported; Yancey, a few—56 counties.

MALARIAL FEVER—Alamance, in some parts; Bertie, in all parts; Cabarrus, in many parts; Catawba; Cherokee, along water courses; Chowan, in all parts; Columbus, in some parts; Cumberland, in all parts; Davie and Durham, in some parts, Edgecombe; Gaston, less prevalent than last fall; Greene, in all parts; Halifax, to some extent; Hertford, in all parts; Johnston, some cases; Martin, in all parts; New Hanover; Northampton, Onslow and Orange, in all parts; Pasquotank; Perquimans, in all parts; Person, a few cases; Robeson, in nearly all parts; Rockingham, in some parts; Rowan, in most parts; Stanly;

Vance; Wake, Warren and Washington, in all parts; Wayne—23 counties.

PERNICIOUS MALARIAL FEVER—Bertie, 1; Chowan, 2; Hertford, 1; Johnston, 1; Martin, 2; Northampton, 1; Warren, 1; Washington, 1; Wayne, 3—9 counties.

HEMORRHAGIC MALARIAL FEVER—Beaufort, 1; Bertie, 2; Chowan, 1; Cumberland, 1, on east side of the Cape Fear river; Edgecombe, 4; Hertford, 1; Martin, 1; New Hanover, 1; Northampton, 2; Onslow, 5—10 counties.

DIARRHEAL DISEASES—Carteret; New Hanover; Pasquotank; Stanly.

CHOLERA IN HOGS—Cherokee; Columbus; Jackson; Onslow.

CHOLERA IN FOWLS—Columbus.

SCOURGE IN FOWLS—Cherokee.

The following counties state that there are no diseases to be reported: Bladen, Caldwell, Henderson, Polk, Rutherford and Wilson.

No reports have been received from the Superintendents of Health of Anson, Caswell, Craven, Duplin, Iredell, Montgomery, Nash and Pitt.

Summary of the Mortuary Reports for September, 1897 (Twenty-three Towns).

Only the towns from which certified reports are received are included:

	White.	Col'd.	Total.
Aggregate population	72,767	54,627	127,394
Aggregate deaths	81	110	191
Representing annual death rate per 1,000	13.3	24.2	18.0
<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever	7	9	16
Scarlet fever	1	0	1
Malarial fever	3	5	8
Diphtheria	2	0	2
Whooping-cough	0	1	1
Pneumonia	1	4	5
Consumption	7	19	26
Brain diseases	2	5	7
Heart diseases	7	5	12
Neurotic diseases	1	1	2
Diarrheal diseases	13	9	22
All other diseases	36	50	85
Accident	1	2	3
	81	110	191
Deaths under five years	18	34	52
Still-born	2	9	11

Mortuary Report for September, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPO- RARY ANNUAL DEATH- RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping- Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS. By Towns. Deaths Under 5 Years. Still-born.
		By Races.	Total.	By Races.	Total.																	
Asheville.....	W.	8,000	13,000	12.0	16.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. M. H. Fletcher.	C.	5,000	2,000	21.0	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Durham.....	W.	4,000	6,000	.....	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. J. M. Manning.	C.	2,000	.....	.....	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
FAYETTEVILLE.....	W.	3,500	6,000	6.8	20.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. J. V. McGougan.	C.	2,500	.....	38.1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GOLDSBORO.....	W.	3,700	5,700	16.2	16.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T. H. Bain, Sec. B. H.	C.	2,000	.....	18.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GREENSBORO.....	W.	5,500	8,000	8.7	21.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
J. S. Michaux, City Clk.	C.	2,500	.....	48.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HENDERSON.....	W.	2,250	4,250	5.3	8.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. F. R. Harris.	C.	2,000	.....	12.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HILLSBORO.....	W.	400	700	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. C. D. Jones.	C.	300	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LENOIR.....	W.	800	1,100	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. A. A. Kent.	C.	300	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MARION.....	W.	750	1,000	18.0	36.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dr. B. A. Cheek.	C.	250	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MONROE.....	W.	1,800	2,400	13.3	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. J. M. Blair.	C.	600	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OXFORD.....	W.	1,500	2,500	8.0	24.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. G. A. Coggeshall.	C.	1,000	.....	48.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RALEIGH.....	W.	8,000	15,000	21.0	17.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T. P. Sale, Clk B. H.	C.	7,000	.....	13.7	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROCKINGHAM.....	W.	1,300	1,750	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. Wm. Fowlkes.	C.	450	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ROCKY MOUNT.....	W.	1,600	2,600	7.5	4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. G. L. Wimberley.	C.	1,000	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SALEM.....	W.	3,942	4,281	12.2	14.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mayor S. E. Butner.	C.	312	.....	35.1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SALISBURY.....	W.	1,500	6,000	2.7	14.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. John Whitehead.	C.	1,500	.....	18.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SCOTLAND NECK.....	W.	775	1,200	31.0	20.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mayor J. A. Perry.	C.	425	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SOUTHPORT.....	W.	800	1,200	15.0	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
H. K. Ruark, City Clk.	C.	400	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TARBORO.....	W.	1,200	2,500	30.0	24.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. L. L. Staton.	C.	1,300	.....	18.5	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WARRENTON.....	W.	1,050	1,700	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. P. J. Macon.	C.	710	.....	0.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WASHINGTON.....	W.	3,000	5,500	28.0	17.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. Joshua Tayloe.	C.	2,500	.....	4.8	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WELDON.....	W.	700	1,150	0.0	8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J. T. Gooch, Mayor.	C.	750	.....	16.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WILMINGTON.....	W.	10,000	25,000	21.6	26.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. W. D. McMillan.	C.	15,000	.....	28.8	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WILSON.....	W.	2,500	1,500	9.6	16.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. N. Anderson.	C.	2,000	.....	18.0	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WINSTON.....	W.	5,200	10,000	4.6	20.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. John Bynum.	C.	1,800	.....	37.5	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

*In addition there was one death from consumption and one unclassified, of non-residents.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. Joshua Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunston.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. I. Watson.	Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. W. A. Simmons.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clark.	Northampton	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. D. C. Parris.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Pearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moye.
Craven	Dr. J. W. Duguid.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. Wm. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John W. Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. E. B. Harris.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. D. P. Whitley.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanness.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Waltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. G. A. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. P. E. Hines.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Council.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. N. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.



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BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

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VOL. XII.

NOVEMBER, 1897.

No. 8.

TO PHYSICIANS.

We respectfully call the attention of our medical readers in the State to the blank form printed on the last page, and earnestly beg them to fill it out and mail it at once to their respective County Superintendents.

FORMALDEHYDE.

There is nothing in sanitation more important than perfect disinfection. To accomplish this in a satisfactory manner in the application of the science to domestic life has heretofore been practically impossible. This has been due to the want of a reliable gaseous disinfectant, as steam, boiling and the use of fluid disinfectants for manifest reasons could not be effectively applied to furniture and many other articles found in the private bed-room. The fumes of burning sulphur (sulphur dioxide) has been our only reliance, and that, owing to the fact that it is not a reliable germicide except in the presence of water, unless the articles to be disinfected are thoroughly wet, and to the further fact that it destroys colors, has never been satisfactory. At last, however, it seems that the agent so much desired has been

obtained in formaldehyde gas, inasmuch as no preparation of the articles to be disinfected, other than spreading them out in the same room occupied by the infectious case, is necessary, and it does not injure the most delicate fabrics. The method is simple and, while not as cheap altogether as we hope soon to have it, is nevertheless easily within the reach of all, except the very poor. By the most expensive of the various methods, the heating of paraform, which is at the same time the neatest and most convenient, the cost of thoroughly disinfecting an ordinary room would not exceed \$1.50, the first cost of the apparatus being about \$4. The same effect, however, can be accomplished at much less expense by means of one of the various lamps that have been invented for making formaldehyde gas by burning wood alcohol.

In the light of the facts so clearly set forth in the article by Dr. Doty, the Health Officer of the Port of New York, which it gives us much pleasure to print below—facts that have been fully confirmed by a great many others—it does seem to us that there is now no valid excuse for failure to properly disinfect in all cases of infectious disease. Private individuals, in any con-

siderable numbers, can hardly be expected to buy the apparatus for a single disinfection. Indeed, this matter should not be left to the private individual, but should be done, wherever practicable, under the immediate supervision of the health officer. Every city and town should have the apparatus and material, and do the disinfecting through its own officer and at its own expense, imposing a heavy penalty upon both the householder and the attending physician for failure to notify the authorities of the recovery or death of the patient. At least one druggist in every city, town and village should keep a lamp and wood alcohol, or a disinfector and pastilles of paraformal, in stock, and the most enterprising ones will do it. We also think that great good could be accomplished if practitioners in the country, out of reach of the facilities to be found in the town, could have as a part of their armamentarium the formaldehyde apparatus for use among their own patients. We commend this to the thoughtful attention of our medical readers.

FORMALDEHYDE AS A DISINFECTANT.

BY ALVAH H. DOTY, M. D.,

HEALTH OFFICER OF THE PORT OF NEW YORK.

It is safe to assume that no disinfectant which has been brought to the notice of the profession at any time has been more thoroughly and scientifically investigated than formaldehyde gas. This is undoubtedly due to the fact that it comes to us when the germ theory of disease has been fully confirmed and accepted, and numerous bacteriological laboratories thoroughly equipped for experimental work in this direction are found throughout the civilized world. Agents which are believed to have germicidal powers now receive the most exhaustive investigation and their value or worthlessness is decided. This is

in marked contrast to the knowledge which we formerly possessed of these agents, particularly as to the gaseous disinfectants.

Twenty years ago, before the value of steam as a disinfectant was fully appreciated, sulphurous-acid gas, or sulphur dioxide (SO_2), was universally employed, both by the profession and the laity. The range of its employment was very great, as it was used for the disinfection of ships, houses, etc., almost to the total exclusion of all other agents; in fact, it may be said that sulphur dioxide is the oldest disinfectant known, having been used in the time of Hippocrates and recommended by him. During this long period, in which SO_2 reigned supreme, it had no competitor of any note. Chlorine gas, which at one time was regarded as equally valuable with sulphur, even if not more valuable, has practically dropped into obscurity. Admitting that sulphur dioxide is a very valuable agent for this purpose, it is well known that in some instances its use is impracticable, as it destroys or bleaches certain fabrics and renders them unfit for use. Steam, now regarded as the most valuable disinfectant which we possess, has practically taken the place of the dioxide in public disinfection and wherever it can be used. Steam, however, cannot be employed for the disinfection of houses, and the expense of the apparatus which is necessary for its practical application at present confines its use to quarantine stations, health departments, hospitals, etc. Even when it is available, certain fabrics cannot be treated by steam without injury or destruction; therefore the necessity of a disinfectant which at times can be used in place of steam or sulphur has been urgently felt.

In 1868 Prof. A. W. Hofmann, a German chemist, discovered that in heating a platinum spiral over the flame of an ordinary laboratory lamp burning methyl, or

wood alcohol, a gas was produced, to which the name of formaldehyde was given. In 1888 A. Trillat, a French investigator, observed that the addition of a small amount of this gas to urine prevented or retarded decomposition. This was followed by further investigation, the details of which he published in 1891. Subsequently, in 1892, he gave to the French Academy of Sciences the results of his work on the germicidal properties of formaldehyde. Since that period the interest in this agent has increased, and during the past two years its disinfecting properties have been carefully and thoroughly investigated, both at home and abroad.

The original and simple lamp of Hofmann has been gradually improved, until to-day we are in possession of lamps of large capacity and capable of generating sufficient gas to disinfect a spacious apartment. It is beyond the scope of this article to give a detailed description of the improvement made in this apparatus more than to say that the first lamp for the generation of formaldehyde gas sufficient for general disinfection was probably devised by Prof. F. C. Robinson, of Bowdoin College, Maine, and shown by him at the meeting of the American Public Health Association, held in Buffalo, in 1896. Since that time numerous lamps of practically the same construction have been presented to the public. The details of Prof. Robinson's lamp, which may be taken as a representative of the rest, will be explained in another portion of this article.

In order to ascertain the value of formaldehyde gas as a disinfectant, experimental work in this direction was begun at the New York Quarantine Station during the fall of last year, and has been continued until the present time. It has been my aim to obtain results which are of practical value; not only to ascertain

the germicidal power of this gas upon exposed surfaces, but to ascertain what penetration we may expect from it—this knowledge being essential to its proper application. Consequently, the micro-organisms used were not only directly exposed to the gas, but were placed inside of sterilized blankets, newspapers and other packages in a manner similar to the experiments with steam recently reported by me. In order to keep in the lines of quarantine work pathogenic organisms were used—viz., the cholera, anthrax and diphtheria bacilli and the bacillus of the plague. The degree of virulence was kept at the highest point by the occasional inoculation of guinea-pigs and white mice. Controls were made in each experiment; portions of the same culture being placed in packages and kept outside of the room or receptacle used for the test. If the controls did not grow the experiment was not recorded. The value of the result thus obtained is beyond question, and it will be appreciated that the work was necessarily slow and arduous.

The tests detailed in the tables which are presented in this article were confirmed by others of the same character. I therefore feel confident that the results presented prove the value of formaldehyde as a superficial disinfectant. The plague cultures used were from three sources: from the Hoagland Laboratory, Brooklyn; from the Pasteur Institute in Paris, through the courtesy of Professor Metchnikoff; and a culture received from Professor Haffkine, of Bombay; so that there could be no doubt as to the identity of this organism. It will be observed that in the experiment plague cultures of two different kinds are used. The propagation and care of these germs were, as in the experiments made with steam, under the direction of Dr. C. B. Fitzpatrick, the bacteriologist in charge of the laboratory at the New York Quarantine Station.

The tests were made in the steam chamber and in the steel formaldehyde tank or chamber on the disinfecting steamer *James W. Wadsworth*; also in a room of a thousand cubic feet space made expressly for the purpose in the laboratory of this department. In the center of the floor of this room is a spray nozzle connected with a tank in an adjoining apartment holding ammonia gas in a liquefied state under a pressure of three hundred and fifty pounds. As a result the formaldehyde gas can at any moment be neutralized. This room, which is almost perfectly tight, I have used as a standard in the experimental work.

At the present time formaldehyde gas for the purpose of disinfection may be derived from the following sources:

1. From a commercial product, known as formaldehyde (formalin, formol), said to be a forty-per-cent. solution of formaldehyde gas in water. The exact method of its production is not explained by the manufacturers. It occurs as a clear, colorless fluid, having a characteristic odor and very irritating to the mucous membranes of the eyes and respiratory tract.

2. From the combination of the above-described formaldehyde solution (formalin) and chloride of calcium placed in a closed receptacle or autoclave. By the application of heat, the gas contained in the autoclave is given off in a dry state and conducted through a tube to the apartment to be disinfected.

3. The generation of formaldehyde gas by the oxidation of methyl or wood alcohol in the lamp already referred to.

4. By the heating of paraformaldehyde in the form of tablets (paraform).

FORMALDEHYDE SOLUTION.

A method of disinfecting with formaldehyde solution (formalin), now seldom used, is to place in the apartment to be disinfected a large shallow pan, into which

is poured the amount of solution regarded as necessary for the purpose; the apartment is then closed for a certain period—generally twelve hours. As already stated, it is claimed that the formaldehyde solution (formalin) is a forty-per-cent. solution of formaldehyde gas in water; therefore the efficiency of the disinfection with this agent depends upon the amount of gas liberated. Those who believed that the entire amount of gas held in solution would be released have been doomed to disappointment, as experience has shown that only a small portion of it is given off. This may be demonstrated by agitating the solution left in the pan after its removal from the room under disinfection, when the presence of formaldehyde is fully appreciated. Besides, it will be seen that along the edges of the pan on the inside, or at the circumference of the fluid, is a white chalky or soapy deposit. This is known as paraformaldehyde, and was formerly regarded as an inert product. It is now known to be polymerized formaldehyde, from which the gas can only be released by the aid of heat under certain conditions. Therefore, as it remains in the pan, its value as a disinfectant is practically nothing. Although the following tables show that this solution may be used as a disinfectant with good results, they will also show that it is an extravagant method of securing formaldehyde gas, inasmuch as a large percentage is not liberated and a considerable amount is changed to the solid form, which at the time is valueless. So far as can be ascertained by experiment, the gas is given off slowly and with no degree of regularity, which are objectionable features, particularly where the disinfection is performed in a living apartment; here the room, which contains windows and doors, cannot be made absolutely tight, and a certain amount of the gas escapes. In the experimental work with this method tests were

made in an absolutely tight receptacle, viz., the steel chamber (without heat) on the James W. Wadsworth, consisting of a space of about a hundred and fifteen cubic feet; another series was made in a room of a thousand cubic feet, already described as constructed for the purpose. The latter may be regarded as representing an apartment in a dwelling-house, although the room in question is carefully sealed and almost air-tight.

FIRST SERIES.

Experiments made in air-tight chamber. Formaldehyde solution (formalin) in shallow pan on floor of apparatus.

TABLE NO. 1.

Character of test: Cultures of the following organisms rubbed in (thoroughly saturating) different portions of a sterilized, thick, woolen blanket.* After the exposure small discs from the infected spots were cut out and placed in tubes containing bouillon. Amount of formaldehyde solution (formalin) used, eight ounces; exposure, twelve hours.

Plague (1)	No growth.
Plague (2)	No growth.
Anthrax (3)	No growth.
Diphtheria (4)	No growth.
Cholera (5)	No growth.

TABLE NO. 2.

Character of test same as Table No. 1. Amount of formaldehyde solution (formalin) used, eight ounces; time of exposure, six hours.

Plague (1)	No growth.
Plague (2)	No growth.
Anthrax (3)	No growth.
Diphtheria (4)	No growth.
Cholera (5)	No growth.

TABLE NO. 3.

Character of test same as Table No. 1. Amount of formaldehyde solution (formalin) used, four ounces; time of exposure, twelve hours.

Plague (1)	No growth.
Plague (2)	No growth.
Anthrax (3)	No growth.
Diphtheria (4)	Growth.
Cholera (5)	No growth.

TABLE NO. 4.

This and the following experiment (Tables No. 4 and 5) were made, not only to ascertain what

*This may be regarded as a severe test in superficial disinfection, and will constantly be made use of in the work which follows.

penetration could be obtained, but also to test the value of the vacuum. Linen discs soaked in the different cultures were placed inside the packages enumerated below. In each instance the packages were wrapped as tightly as possible. As the formaldehyde solution (formalin) is conducted to the interior of the chamber through a small pipe from a tank overhead, a vacuum in this experiment was made before the formalin was introduced. In this way the air contained in the chamber and, as far as possible, in the packages was removed, thereby offering less resistance to the penetration of the formaldehyde gas.

Amount of formaldehyde solution (formalin) used, one quart; time of exposure, twelve hours.

Plague (1), infected disc inside sheet of paper and envelope	No growth.
Plague (2), infected disc inside single newspaper	No growth.
Plague (3), infected disc inside newspaper (weight, one pound)	Growth.
Plague (4), infected disc inside blanket	No growth.
Plague (5), infected disc inside towel	No growth.
Diphtheria (6), infected disc inside sheet of paper and envelope	No growth.
Diphtheria (7), infected disc inside single newspaper	No growth.
Diphtheria (8), infected disc inside newspaper (weight, one pound)	Growth.
Diphtheria (9), infected disc inside blanket	Growth.
Diphtheria (10), infected disc inside towel	No growth.
Anthrax (11), infected disc inside sheet of paper and envelope	No growth.
Anthrax (12), infected disc inside single newspaper	No growth.
Anthrax (13), infected disc inside newspaper (weight, one pound)	Growth.
Anthrax (14), infected disc inside blanket	No growth.
Anthrax (15), infected disc inside towel	No growth.

TABLE NO. 5.

Character of test same as Table No. 4, but without vacuum. Amount of formaldehyde solution (formalin) used, one quart; time of exposure, twelve hours.

Plague (1), infected disc inside single newspaper	Growth.
Plague (2), infected disc inside newspaper (one pound)	Growth.
Plague (3), infected disc inside blanket	No growth.
Plague (4), infected disc inside towel	No growth.

Diphtheria (5), infected disc inside single newspaper.....	Growth.
Diphtheria (6), infected disc inside newspaper (one pound)	Growth.
Diphtheria (7), infected disc inside blanket.....	Tube broken.
Diphtheria (8), infected disc inside towel.....	Tube broken.
Anthrax (9), infected disc inside single newspaper	Growth.
Anthrax (10), infected disc inside newspaper (one pound).	Growth.
Anthrax (11), infected disc inside blanket.....	No growth.
Anthrax (12), infected disc inside towel.	No growth.

The effect of the vacuum is here noticeable. In the experiment noted in Table No. 4, it will be seen that penetration took place in a single newspaper, and no growth occurred when the discs were removed from these packages and placed in bouillon; whereas in Table No. 5, where a vacuum was not made, a growth occurred when discs taken from a single newspaper were treated in the same manner.

SECOND SERIES.

TABLE NO. 6.

Character of test same as Table No. 1. Experiments made in room of one thousand cubic feet space; amount of formaldehyde solution used, one pint; exposure, six hours.

Plague (1)	Growth.
Plague (2)	Growth.
Anthrax (3)	Growth.
Diphtheria (4).....	Growth.
Cholera (5)	Growth.

TABLE NO. 7.

Character of test same as Table No. 1. Amount of formaldehyde solution (formalin) used, one pint; time of exposure, twelve hours.

Plague (1).....	Growth.
Plague (2).....	Growth.
Anthrax (3)	Growth.
Diphtheria (4).....	No growth.
Cholera (5).....	Growth.

TABLE NO. 8.

Character of test same as Table No. 8. Amount of formaldehyde solution (formalin) used, three pints; time of exposure, twelve hours.

Plague (1)	No growth.
Plague (2)	No growth.
Anthrax (3).....	No growth.
Diphtheria (4).....	No growth.
Cholera (5).....	No growth.

The above experiments would show that for general disinfection this is an extravagant, unsatisfactory and unreliable method of obtaining formaldehyde gas, and should only be used when no other method is available. When employed, at least three pints of the solution should be used for each thousand cubic feet of space. Even this cannot always be depended upon, as the gas is only partly given off, depending in a great measure upon the size and shape of the receptacle. Therefore the pans should be large and shallow, in order that the surface of formalin exposed shall be as great as possible.

THE COMBINATION OF FORMALDEHYDE SOLUTION (FORMALIN) AND A SOLUTION OF CHLORIDE OF CALCIUM.

What has just been said as to the impracticability of securing the gas from the formaldehyde solution (formalin) in the manner above described was fully appreciated by Trillat, to whom we are indebted for the discovery of a method by which we are enabled to rapidly remove from the solution all the gas therein contained. This investigator found that in adding to the formaldehyde solution a ten to thirty-percent. solution of a neutral salt, preferably chloride of calcium, and placing the mixture in a closed receptacle and applying heat, all the gas contained in the mixture was rapidly given off in a comparatively dry state without the formation of para-formaldehyde. The apparatus (autoclave) which he devised for the purpose consists of a copper receptacle, silvered on the inside to prevent the action of the formaldehyde, which would in time affect the exposed copper. The receptacle has a capacity of about three or four quarts, and stands on a tripod, allowing sufficient space for a lamp underneath. The top, or cover (which can be entirely removed), is securely fastened to the apparatus by turn-buckles. The autoclave is supplied

with a pressure gauge, and has an escape pipe of about a sixteenth of an inch inside diameter, which conducts the gas from the autoclave through a key-hole, or any small opening, into the apartment to be disinfected. This pipe connects with an angle valve which regulates the escape of formaldehyde from the autoclave. The necessary amount of the mixture above referred to having been poured into the receptacle, the cover is tightly clamped, the lamp underneath the apparatus lighted and the valve on the escape pipe closed until a temperature of 135° C. is reached; at this time there is an inside pressure of probably thirty pounds; the valve is then opened and the formaldehyde allowed to escape into the apartment under disinfection. If the temperature does not exceed 135° C., the escaping gas contains but little moisture. This is regarded by Trillat as particularly desirable, although moisture does not, so far as I can ascertain, interfere materially with the disinfecting qualities of the gas. However, upon delicate hangings, etc., the moisture does not have a desirable effect. Usually, after the valve is opened, the gas from a mixture containing one pint of the formaldehyde solution (formalin) will be discharged in about thirty minutes. When the autoclave is opened more or less fluid is found. If the temperature has been raised about 135° C. the amount will depend on the volume of steam which has been given off with the gas. If the temperature is too high, and the operation is continued too long, nothing may be found in the receptacle but the chloride of calcium. Without fluid in the autoclave, the heat is very apt to injure the metal. These details are carefully explained by the instrument makers. It must not be forgotten that considerable pressure in the operation is essential, and that the instrument should be of the very best construction; otherwise accidents may happen. After the

experimental work at this station had proved the value of formaldehyde gas as a disinfectant, I constructed on board the disinfecting boat, James W. Wadsworth, a circular steel chamber, or tank, having a capacity of two hundred and fifty cubic feet, and being well braced in order to stand a vacuum; to secure the latter a steam exhauster was added. The chamber is fitted with a coil of pipe inside to secure heat, if at any time it is deemed advisable. It has in addition a fresh-air inlet pipe, by which a current of fresh air may be drawn through the tank. The interior of this apparatus is fitted with trays made of galvanized iron wire, upon which are carefully laid the articles to be disinfected. These may be put into the tank either through an opening on the deck of the boat, or at the opening on the front of the tank. The latter is closed by a door which is hinged to a circular rim on the apparatus, containing a rubber gasket, in order that the tank may be made air-tight. The door is fastened by turn-buckles. The autoclave rests on a stand on the left and connected with the tank by a one-sixteenth-inch brass discharge pipe, which conducts the gas to the interior of the chamber, where disinfection is to be performed. The material treated is, as a rule, that which cannot be subjected to steam, and consists of silk, laces, leather goods, etc. The special advantages of this chamber are, first, the removal by the steam exhauster of the air in the chamber and in the material to be disinfected, thus allowing greater and quicker penetration by the formaldehyde and performing the disinfection in a shorter time; second, the chamber being made air-tight, the material to be treated is affected by the entire volume of gas.

The experiments with this method of disinfection were made in the formaldehyde chamber just described, and also in a room having a space of 1,000 cubic feet.

(Want of space compels us to omit the tables showing the result of the tests by this method. Suffice it to say that they were very successful).

THE GENERATION OF FORMALDEHYDE GAS BY THE OXIDATION OF METHYL ALCOHOL IN LAMP.

As already stated, the simple lamp of Hofmann has to-day been replaced by lamps of different designs for the generation of formaldehyde gas from methyl alcohol. These are not only practical, but are of sufficient size to disinfect apartments of considerable cubic space. The lamp suggested by Professor Robinson may be taken as a type of this method of generating the gas, inasmuch as it is simple and effective. In construction it is similar to a student's lamp, having an upright shaft supporting on one side the reservoir and on the other the pan which holds the alcohol escaping from the reservoir through a small tube. The pan, which is about eight inches in diameter and two inches in height, is covered by a movable cylinder ten inches high; the upper two or three inches being made cone-shaped, having an opening at the top of three inches. About midway in this cylinder is a diaphragm consisting of a disc made of platinized asbestos, perforated. In the cylinder above referred to are numerous openings. These are important, inasmuch as it is necessary to admit just enough air to maintain the proper combustion. In preparing the lamp for use, the amount of methyl alcohol required for the disinfection is placed in the reservoir, and through the small tube it reaches the pan on the opposite side. The mechanism is so adjusted that the alcohol fills the pan to a height just above the opening of the tube, which lies on the floor of the pan. A match is now carefully applied to the exposed alcohol and the cylinder put in place over the flame. It is kept in this

position for a minute, or less, until the asbestos disc is thoroughly heated; the cylinder is then quickly removed, and the flame extinguished by holding a cover over the pan. The cylinder is again put in place. The heat from the disc vaporizes the alcohol and oxidation ensues, and, as a result, the asbestos disc becomes red hot. Formaldehyde is now discharged from the lamp and the room is closed. It frequently occurs that the disc is not sufficiently heated in the first instance. For this reason the lamp should not be left until the disc is seen to be heated red.

The following experiments with the formaldehyde lamp were made in a room of one thousand cubic feet of space.

TABLE NO. 20.

Character of test: Infected discs were placed inside the packages enumerated below. Amount of alcohol used, one quart; time of exposure, twelve hours.

Anthrax (1), infected disc inside towel.....	No growth.
Anthrax (2), infected disc inside envelope and paper	No growth.
Anthrax (3), infected disc inside newspaper	No growth.
Cholera (4), infected disc inside towel.....	No growth.
Cholera (5), infected disc inside envelope and paper.....	No growth.
Cholera (6), infected disc inside newspaper.....	No growth.
Plague (7), infected disc inside towel.....	No growth.
Plague (8), infected disc inside envelope and paper	No growth.
Plague (9), infected disc inside newspaper.....	No growth.
Diphtheria (10), infected disc inside towel.....	No growth.
Diphtheria (11), infected disc inside envelope and paper.....	No growth.
Diphtheria (12), infected disc inside newspaper	Growth.

TABLE NO. 27.

Character of test same as Table No. 1. Amount of alcohol used, one quart; time of exposure, six hours.

Plague (1).....	No growth.
Plague (2).....	No growth.
Anthrax (3)	No growth.
Diphtheria (4).....	No growth.
Cholera (5) ..	Growth.

TABLE NO. 28.

Character of test: Infected discs inside the following packages. Amount of alcohol used, one quart; time of exposure, six hours.

Plague (1), infected disc inside sheet of paper and envelope	No growth.
Plague (2), infected disc inside towel.....	No growth.
Plague (3), infected disc inside single newspaper.....	Growth
Cholera (4), infected disc inside sheet of paper and envelope	No growth.
Cholera (5), infected disc inside towel.....	No growth.
Cholera (6), infected disc inside single newspaper.....	No growth.
Diphtheria (7), infected disc inside sheet of paper and envelope.....	No growth.
Diphtheria (8), infected disc inside towel.....	No growth.
Diphtheria (9), infected disc inside single newspaper.....	Growth.
Anthrax (10), infected disc inside sheet of paper and envelope	No growth.
Anthrax (11), infected disc inside towel.....	No growth.
Anthrax (12), infected disc inside newspaper.....	Growth.

TABLE NO. 29.

Character of test same as Table No. 1. Amount of alcohol used, one pint; time of exposure, six hours.

Plague (1).....	No growth.
Plague (2).....	Growth.
Anthrax (3).....	No growth.
Diphtheria (4).....	Tube broken.
Cholera (5).....	No growth.

SAME TEST.

Plague (1), infected discs inside sheet of paper and envelope.....	No growth.
Plague (2), infected discs inside sheet of paper and envelope	No growth.
Anthrax (3), infected discs inside sheet of paper and envelope	Growth.
Diphtheria (4), infected discs inside sheet of paper and envelope.....	Growth.
Cholera (5), infected discs inside sheet of paper and envelope.....	No growth.

TABLE NO. 30.

Character of test same as Table No. 1. Amount of alcohol used, one pint; time of exposure, twelve hours.

Plague (1).....	No growth.
Plague (2).....	No growth.
Anthrax (3).....	No growth.
Diphtheria (4).....	No growth.
Cholera (5).....	No growth.

SAME TEST.

Plague (1), infected discs inside sheet of paper and envelope	No growth.
Plague (2), infected discs inside sheet of paper and envelope	No growth.
Anthrax (3), infected disc inside sheet of paper and envelope	No growth.
Cholera (4), infected discs inside sheet of paper and envelope	No growth.
Diphtheria (5), infected discs inside sheet of paper and envelope.....	No growth.

TABLE NO. 31.

Character of test same as Table No. 1. Amount of alcohol used, one pint; time of exposure, twelve hours.

Plague (1).....	No growth.
Plague (2).....	No growth.
Anthrax (3).....	Growth.
Diphtheria (4).....	No growth.
Cholera (5).....	No growth.

TABLE NO. 32.

Character of test same as Table No. 1. Amount of alcohol used, one and a half pints; exposure twelve hours.

Plague (1).....	No growth.
Plague (2).....	No growth.
Anthrax (3).....	No growth.
Diphtheria (4).....	No growth.
Cholera (5).....	No growth.

TABLE NO. 33.

Character of test same as Table No. 1. Amount of alcohol used, a pint and a half; exposure, twelve hours.

Plague (1).....	No growth.
Plague (2).....	No growth.
Anthrax (3).....	No growth.
Diphtheria (4).....	No growth.
Cholera (5).....	No growth.

These experiments show that the oxidation of one pint of methyl alcohol in the lamp above described, with an exposure of twelve hours, is hardly sufficient for superficial disinfection in a room of one thousand cubic feet of space, as it will be seen that a growth occurred in Table No. 31 (See Anthrax No. 3), where a pint of alcohol was used, with twelve hours' exposure. Therefore, a pint and a half should be used for each one thousand cubic feet of space, as indicated in Tables 32 and 33.

DISINFECTION BY THE HEATING OF PARA-
FORMALDEHYDE (PARAFORM) IN THE
FORM OF TABLETS OR PASTILLES.

In a previous part of this article, in describing the use of formaldehyde solution (formalin), reference was made to a white, soapy or chalky substance which is found after the formalin has been exposed for some time. This is now known to be paraformaldehyde, and is made into tablets for disinfection. Recently, Schering & Co., the manufacturers, have devised an apparatus for heating these tablets which is simple and easily manipulated. It consists of a small sheet-iron cylinder resting on a tripod, and supporting at the upper end an iron cup, the upper portion of which is connected with the edge of the cylinder by wire netting, thus allowing a draught from underneath, which facilitates the removal of the gas from the cup. An alcohol lamp under the cylinder furnishes the necessary heat. The pastilles are placed in the cup, the lamp lighted, and the room closed.

The following experiments with this method of securing formaldehyde for disinfection were made in a room of one thousand cubic feet of space:

TABLE NO. 34.

In this test an improvised apparatus was made by using a Bunsen burner under a small wire tripod, upon which was placed a shallow metal dish holding the pastilles. The Bunsen burner was operated by a gas meter outside of the apartment. At first the heat was too great, and once or twice the tablets were set on fire, and it was necessary to enter the room to extinguish the flame. The heat, however, was reduced, and remained in this manner for three hours, at the end of which time the tablets were burned to ashes. The gas was then turned off.

Character of test: Infected discs inside the following packages. Number of pastilles used, forty; time of exposure, twelve hours.

Anthrax (1), infected disc inside of towel No growth.
Anthrax (2), infected disc inside of envelope and paper, No growth.

Anthrax (3), infected disc inside of newspaper Growth.
Cholera (4), infected discs inside of towel, No growth.
Cholera (5), infected discs inside of envelope and paper, No growth.
Cholera (6), infected discs inside of newspaper Growth.
Plague (7), infected discs inside of towel, No growth.
Plague (8), infected discs inside of envelope and paper, No growth.
Plague (9), infected discs inside of newspaper Growth.
Diphtheria (10), infected discs inside of towel, No growth.
Diphtheria (11), infected discs inside of envelope and paper No growth.
Diphtheria (12), infected discs inside of newspaper Growth.

TABLE NO. 35.

In the second test the apparatus devised for this special purpose was used, which is an improvement, inasmuch as the lamp is so constructed that the heat can be properly regulated, and the alcohol contained is sufficient to keep the lamp burning for three or four hours, by which time the tablets were reduced to ashes.

Character of test same as Table No. 1. Number of tablets used, forty; time of exposure, twelve hours.

Plague (1), No growth.
Plague (2), No growth.
Anthrax (3), No growth.
Diphtheria (4), No growth.
Cholera (5), No growth.

Since this article was prepared for publication, an apparatus for the production of formaldehyde which possesses considerable merit has been placed upon the market by the Sanitary Construction Company. It consists of a copper reservoir having a capacity of about three quarts. From the bottom of this leads a one-fourth-inch copper tube which two inches lower down forms a coil. The lower end of the coil is continuous with a brass tube of the same diameter, which ends about four inches above the reservoir in a rubber tube having a nozzle sufficiently small to be passed through a key-hole or any other small opening. Underneath the coil is placed a Swedish lamp, which furnishes the neces-

sary heat. The formaldehyde solution (formalin) which is placed in a reservoir is allowed to slowly enter the coil by means of a valve. At this point it is acted upon by the flame of the lamp underneath, and as a result the gas contained is discharged through the small tube into the the apartment to be disinfected. The advantages claimed for this instrument are as follows: That the formaldehyde solution (formalin) can be used alone without the addition of a neutral salt, thereby dispensing with the pressure which is required when this mixture is used in an autoclave. As there is no need of the employment of pressure in releasing the gas, the instrument can be made of light material and comparatively cheap. This apparatus will be favorably considered, inasmuch as the autoclave devised by Trillat, and also the method of combining chloride of calcium with the formaldehyde solution for use under pressure in an autoclave, has been patented by a French company with which Trillat is now connected. Experiments which I have made with this apparatus would thus far show that the results are practically the same as those derived from the autoclave; it also has the advantage possessed by the Trillat apparatus of rapidly releasing from outside the formaldehyde into the apartment to be disinfected. However, I should prefer to have further experience with this instrument before deciding as to its relative value.

The Use of Ammonia to Neutralize Formaldehyde Gas.—It would appear from the prominence given this agent in connection with the use of formaldehyde that its function was misunderstood. The use of ammonia is not by any means a part of the disinfection with formaldehyde, and its employment is only indicated when the odor is objectionable and a desire is expressed to neutralize it. This may occur in a private residence, or, oc-

casionaly, where the apartment is needed for sleeping purposes. As a matter of fact, after the apartment which has been subjected to treatment is opened and well aired, or the clothing hung outside, the odor of the formaldehyde soon disappears. Besides, the use of ammonia presumably cuts short the disinfecting properties of the formaldehyde, whereas it should be continued as long as possible. If it is deemed advisable in any case to use ammonia, it should, if possible, be used in a compressed form. Ammonia can now be obtained in New York City in small cylinders containing one pound. The cost is no greater than for the water of ammonia, and the contents of one of the cylinders will sufficiently neutralize the odor of formaldehyde present in a room having a space of two or three thousand cubic feet. I have used ammonia in this form from a large cylinder for some time in the room used for experimental purposes in order to neutralize the formaldehyde preparatory to another test.

Investigations as to the effect of Formaldehyde upon Insects, Animals, etc.—In conjunction with the experiments above cited I have carefully inquired into the effect of formaldehyde upon insects, fowls, guinea-pigs, mice, etc., by placing them in the apartment during disinfection under different circumstances and during various periods of time, ranging from three to fifteen hours, and in no instance has death ensued. Occasionally a guinea-pig would show evidence of an inflammatory condition of the respiratory tract; this, however, was uncommon.

Importance of Testing the Preparations used for Disinfection.—When it is considered how generally the formaldehyde solution (formalin) is selected as the agent from which the gas is obtained for disinfection, the necessity of knowing the exact amount of formaldehyde which it contains is evident. All commercial pro-

ducts are liable to deterioration and adulteration. A lot of formaldehyde solution (formalin) may to-day contain thirty-five per cent. of formaldehyde gas and the next lot probably thirty per cent., or less. It may also contain a large amount of methyl alcohol, sufficient in some cases to constitute an element of danger. If a pint of formaldehyde solution, either alone, mixed with chloride of calcium, or in any other form, is regarded as sufficient for the disinfection of a room of a given space, it is essential that the percentage of formaldehyde should be known to constitute a standard upon which to work, and the subsequent supply of this agent should conform to the standard, or the difference should be noted. From the beginning of my experimental and practical work with this agent all the formaldehyde preparations used have been carefully tested to ascertain the amount of formaldehyde contained. This has been under the supervision of Dr. Ernst J. Lederle, the consulting chemist of this department. In conjunction with this Dr. Lederle has very carefully investigated formaldehyde from a chemical standpoint, and the result of his work, which is of great value and interest, will be given in this issue of the *New York Medical Journal*. It is also essential that the methyl alcohol used in the disinfecting lamp should be tested.

CONCLUSION.—A careful analysis of the results obtained in the experimental investigation to determine the value of formaldehyde as a disinfectant will show that this agent cannot be depended upon for disinfection where deep penetration is required. It can, however, be relied upon to penetrate letters and other thin packages if placed in an air-tight chamber, as in the apparatus referred to on the James W. Wadsworth. It is here that the importance and value of a vacuum is appreciated. Packages of the character just

described are usually penetrated in a comparatively tight room. This has been proved not only by the germicidal effect upon the micro-organisms contained, but by the effect on blotting paper, ribbons and silk, colored with fuchsine and magenta, and placed inside of letters, the envelope being tightly sealed. The change of color is very apparent upon opening the package after treatment. In packages made of blankets, clothing, etc., the action of formaldehyde upon infected discs placed inside is uncertain and not always the same. As a rule, penetration does not occur; at least the organisms are not generally killed. This uncertainty would seem to decide the inefficiency of formaldehyde for deep penetration. For superficial disinfection—*i. e.*, of hangings, furniture, clothing, furs, silks and other articles which can be spread out and the surfaces exposed—formaldehyde is an agent of undoubted value, particularly as it does not, as a rule, injure the finest fabrics, and therefore may be safely used in an apartment furnished with delicate paper hangings and furniture.

In the selection of the method for disinfection with formaldehyde, it is evident that the use of a formaldehyde solution simply exposed on pans is not to be considered, provided other methods are available. The heating of pastilles of paraformaldehyde is a simple, effective and neat method of securing the gas, although at present it is a comparatively expensive one. It is necessary, however, that the apparatus for heating the pastilles should remain in the apartment until the time for disinfection has expired. The gas is therefore evolved slowly, and its release depends upon the proper performance of a lamp which cannot be kept under observation. For the same reason it may not burn sufficiently long to reduce the pastilles to ashes, or an accident may happen. I only refer to these as possibilities.

The lamp for the generation of formaldehyde by the oxidation of methyl alcohol, which has already been described, is also an effective method, as the experiments above shown will prove. This method of securing the gas is considerably cheaper than the preceding one—a pint and a half of wood or methyl alcohol, valued at twenty cents, being sufficient for the disinfection of a room having a space of one thousand cubic feet, whereas the expense of the pastilles for this purpose is about seventy-five cents. Like the apparatus just described, the lamp can be purchased for a comparatively small sum, is easily manipulated, and is very satisfactory for house disinfection. However, it is practically subject to the same criticism—*i. e.*, that the process is comparatively slow, and the lamp remains in the apartment, and not under observation, until the disinfection is completed. In a structure subject to change of position, as a ship, it is not improbable that an accident may occur.

In the use of the autoclave and the new apparatus above referred to, we have a method by which the formaldehyde is rapidly released and conveyed to the apartment to be treated, and when this is finished, the instrument, which is operated from the outside, can be removed. In this way the material to be treated is subjected to almost the entire volume of gas before any considerable leakage from the room may occur, whereas in the slower methods, if the room is not made tight, at no time is the material in the room acted on by all or nearly all the gas generated. Short exposures are therefore only justified in cases where the gas is rapidly released into the apartment by the autoclave or a similar apparatus. Further, this method does not require that the apparatus be left in the apartment; thus is avoided the possibility of a faulty action of the instrument or the chance of a change in its po-

sition. For general use, therefore, particularly for ship disinfection, I am in favor of this method of disinfection.

Review of Diseases for October, 1897. (Seventy-four Counties Reporting).

Eighty-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

MEASLES—Greene, 1; Guilford, 2; Iredell, 10; Surry, epidemic.

WHOOPIING-COUGH—Alamance; Columbus, 2; Cumberland, 6; Davidson, 20; Haywood, 10; Martin, 30; Mecklenburg, 6; New Hanover, 3; Onslow, 5; Pasquotank, 1; Robeson; Stokes, 12; Surry, 6; Wake, 6—14 counties.

SCARLATINA—Buncombe, 3; Cumberland, 4; Edgecombe, 2; Forsyth, in all parts; Granville, 2; Guilford, 10; Iredell, 2; Martin, 2; Mecklenburg, 5; New Hanover, 5; Orange, 1; Randolph, 2; Richmond, 2; Robeson; Rowan, 3; Surry, 1; Vance, in some parts, subsided under quarantine—17 counties.

DIPHTHERIA—Alexander, 3; Ashe, 1; Buncombe, 1; Catawba, 4; Cleveland, 1; Cumberland, 1; Davidson, 2; Gaston, 3; Guilford, 2; Iredell, 2; McDowell, 1; Mecklenburg, 4; New Hanover, 1; Northampton, 1; Randolph, 2; Surry, 3—16 counties.

TYPHOID FEVER—Alamance; Alexander, 5; Ashe, 3; Beaufort, 3; Buncombe, 2;

Burke, 1; Cabarrus, 8; Chowan, 1; Clay, 3; Cleveland, 2; Columbus, 2; Cumberland, 1; Davidson, 6; Durham, 4; Edgecombe, 5; Gaston, in nearly all parts; Greene, 1; Halifax, 8; Haywood, 14; Hertford, 1; Iredell, 4; Jackson, 6; McDowell, 1; Macon, a few; Madison, 40; Martin, 2; Mecklenburg, 22; Moore, 1; Nash; New Hanover, 2; Orange, 2; Pasquotank, 1; Perquimans, 5; Pitt, a few; Polk, 1; Rowan, 4; Sampson, a few; Surry, 3; Swain, to a limited extent in all parts, of mild type; Union, 12; Wake, 7; Warren, 1; Wayne, 1; Yadkin, 8; Yancey, a few—45 counties.

MALARIAL FEVER—Alamance; Bertie, in all parts; Cabarrus; Catawba and Chatham, a few; Chowan; Columbus; Cumberland, in all parts; Durham, in nearly all parts; Gaston, on Big Long creek; Greene, in all parts; Halifax; Iredell, in all parts; Johnston; Martin; Mecklenburg; New Hanover; Northampton, Onslow and Orange, in all parts; Pasquotank; Perquimans and Person, a few; Pitt; Sampson, in all parts; Vance; Wake; Warren, in all parts; Wilson, a few; Yadkin—30 counties.

MALARIAL FEVER, PERNICIOUS—Bertie; Chowan, 3; Iredell, 1; Northampton, 1; Orange, 1; Union.

MALARIAL FEVER, HEMORRHAGIC—Bertie, 1; Chowan, 3; Cumberland, 3; Edgecombe, 1; Halifax, 2; Johnston, 2; Martin, 6; New Hanover, 1; Northampton, 6; Onslow, 4; Perquimans, 2—11 counties.

INFLUENZA—Ashe; McDowell; Union.

CHOLERA, IN HOGS—Ashe; Sampson.

CHOLERA, IN FOWLS—Iredell.

DISTEMPER, IN CATTLE—McDowell.

STAGGERS, IN HORSES—Edgecombe.

The following counties state that there are no diseases to be reported: Bladen, Caldwell, Davie, Franklin, Henderson, Pender, Rutherford, Stanly, Transylvania, Watauga and Wilkes.

No reports have been received from the Superintendents of Health of Anson, Cherokee, Duplin, Mitchell and Washington.

Summary of Mortuary Reports for October 1897 (Twenty-four Towns).

Only the towns from which certified reports are received are included:

	<i>White. Col'd. Total.</i>		
Aggregate population	75,239	56,421	131,660
Aggregate deaths	70	114	184
Representing temporary annual death rate per 1,000	11.2	24.2	17.5
<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever	4	4	8
Malarial fever	2	6	8
Diphtheria	2	0	2
Whooping-cough	1	0	1
Pneumonia	1	4	5
Consumption	8	19	27
Brain diseases	3	4	7
Heart diseases	5	10	15
Diarrheal diseases	10	5	15
All other diseases	33	60	93
Accident	1	2	3
	70	114	184
Deaths under five years	24	36	60
Still-born	8	13	21

Mortuary Report for October, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPO- RARY ANNUAL DEATH- RATE PER 1,000.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	By Races.	By Towns.	Deaths Under 5 Years.	Still-born.
		By Races.	Total.																							
ASHEVILLE.....	W.	8,000	13,000	7.5	11.8	1	...	...	...	...	...	...	2	1	...	...	...	...	3	...	...	5	16	1	1
Dr. M. H. Fletcher.	C.	5,000	...	26.4	...	1	...	...	...	...	...	1	2	2	...	...	...	...	4	1	...	11	3	1	...
Durham.....	W.	4,400	6,000	...	...	...	...	1	...	...	...	...	2	...	...	1	...	...	1	...	...	4	6	1	...
Dr. J. M. Manning.	C.	2,000	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2	...	...	...
FAYETTEVILLE.....	W.	3,500	6,000	3.4	12.0	1	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	1	6	2	...
Dr. J. V. McGowan.	C.	2,500	...	24.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	...	...
GOLDSBORO.....	W.	3,700	5,700	3.2	16.8	1	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	8	5	1
T. H. Bain, Sec. B. H.	C.	2,000	...	42.0	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
GREENSBORO.....	W.	5,500	8,000	4.1	18.0	...	...	1	...	...	...	...	1	...	2	1	...	1	...	...	...	2	12	...	2
J. S. Michaux, City Clk.	C.	2,500	...	48.0	...	...	...	...	...	...	...	3	2	1	...	...	1	2	...	...	...	10	4	...	
HENDERSON.....	W.	2,250	4,250	5.3	14.1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	5	1	...
Dr. F. R. Harris.	C.	2,000	...	24.0	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	4	...	...	...
HILLSBORO.....	W.	400	700	0.0	17.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Dr. C. D. Jones.	C.	300	...	40.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LENOIR.....	W.	800	1,100	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. A. A. Kent.	C.	300	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MARION.....	W.	750	1,000	32.0	24.0	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1	...
Dr. B. A. Cheek.	C.	250	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
MONROE.....	W.	1,800	2,500	6.7	10.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...
Dr. J. M. Blair.	C.	600	...	20.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	0	...	...	...
OXFORD.....	W.	1,100	2,200	0.0	10.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...	...
Dr. G. A. Coggeshall.	C.	1,100	...	21.8	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
RALEIGH.....	W.	8,000	15,000	16.5	15.2	1	...	1	1	...	...	2	3	3	...	...	...	...	...	...	...	11	19	6	2
F. P. Sale, Clk B. H.	C.	7,000	...	13.7	...	1	...	...	...	...	...	...	1	1	...	...	1	1	...	...	...	8	1	2	...
ROCKINGHAM.....	W.	1,400	1,750	8.6	6.8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Dr. W. M. Fowlkes.	C.	350	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ROCKY MOUNT.....	W.	1,600	2,600	30.0	23.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	...	...
Dr. G. L. Wimberley.	C.	1,000	...	12.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
SALEM.....	W.	4,100	1,550	11.7	10.5	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	4	4	2	...
S. G. Butner, Mayor.	C.	450	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
SALISBURY.....	W.	4,000	5,500	12.0	17.4	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	4	8	1	...
Dr. John Whitehead.	C.	1,500	...	32.0	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
SCOTLAND NECK.....	W.	775	1,200	0.0	10.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
J. A. Perry, Mayor.	C.	425	...	28.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TARBORO.....	W.	1,200	2,500	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. L. L. Staton.	C.	1,300	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
WARRENTON.....	W.	964	1,700	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. P. J. Macon	C.	746	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
WASHINGTON.....	W.	3,000	5,500	8.0	15.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	1	...
Dr. D. T. Tayloe.	C.	2,500	...	24.0	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...
WELDON.....	W.	700	1,450	31.3	33.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	...
J. T. Gooch, Mayor.	C.	750	...	32.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
WILMINGTON.....	W.	10,000	25,000	21.6	25.9	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	18	54	4	3
Dr. W. D. McMillan.	C.	15,000	...	28.8	...	...	...	3	...	...	...	1	3	...	...	...	...	...	...	...	...	36	12	1	...
WILSON.....	W.	2,500	1,500	14.1	13.3	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3	5	3	...
Dr. N. Anderson.	C.	2,000	...	12.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
WINSTON.....	W.	5,200	10,000	9.2	18.2	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	16	2	...
Dr. John Bynum.	C.	4,800	...	30.0	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	12	4	3	...

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

*In addition there were seven deaths from consumption, and one from pyonephrosis of non-residents.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunston.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. I. Watson.	Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Paullico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moyer.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. Wm. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgemont	Dr. L. L. Staton.	Stanly	Dr. D. P. Whitley.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCaules.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. G. A. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. P. E. Hines.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Councill.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. N. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Small-pox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks :

M. D.



BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

<p>GEO. G. THOMAS, M. D., <i>Pres.</i>, Wilmington. S. WESTRAY BATTLE, M. D., Asheville W. H. HARVELL, M. D., Williamston. JOHN WHITEHEAD, M. D., S. Jis' ury. RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i>, Raleigh.</p>	<p>C. J. O'HAGAN, M. D., Greenville. J. D. SPICER, M. D., Goldsboro. J. L. NICHOLSON, M. D., Richlands. A. W. SHAFFER, SAN ENG., Raleigh.</p>
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VOL. XII.

DECEMBER, 1897.

No. 9.

AN APPEAL.

Numerous complaints from County Superintendents of Health of failure on the part of the profession at large, to report to them the diseases occurring in their practice, leads us to once more appeal to our physicians to make these reports promptly and regularly. We had hoped that by handing to every doctor in the State, every month, a blank for this report (on the back of the BULLETIN) we would secure fuller reference. Doctors, please report and help us out that much.

SMALL-POX.

Small-pox, it is said, is prevailing in thirty counties of Georgia, some of which are quite near our border, and it has also made its appearance in Rock Hill, S. C., which is also quite close to us. We would suggest to the Superintendents of those counties near the infected districts the advisability of encouraging, as far as possible, among their people a panic on the subject and, under its influence, vaccinate the last one of them.

AN ACKNOWLEDGMENT.

We desire to correct an omission in our last issue by not acknowledging an indebtedness to that standard medical weekly, the *New York Medical Journal*, for the article on "Formaldehyde," quoted therein.

SECRETARY OF THE TENNESSEE BOARD OF HEALTH.

We much regret to note the recent death of Dr. J. Berrien Lindsley, the efficient and popular Secretary of the State Board of Health of Tennessee. We little thought when we last saw this kindly gentleman and enthusiastic health officer in August, that he would so soon be called to his reward. Dr. J. A. Albright, at that time President of the Board, we learn from the papers, has resigned that office and been elected to succeed Dr. Lindsley. We take special pleasure in welcoming him into our ranks because of a certain kinship which arises from the fact that he went to Tennessee from one of our nearby counties—Alabama. We wish him God-speed in his responsible position.

NATIONAL QUARANTINE.

As a result of the recent epidemic of yellow fever on our Gulf coast, with its disastrous consequences in loss of life and interference with commerce, the sanitarians of the country and the people, especially of the South, are at present deeply interested in devising some means of preventing in future the lodgement upon our shores of these foreign pests. The re-assembling of Congress, of which legislation will be asked, adds to the importance of the discussion just at this time. Owing to our port of Wilmington, this is a matter that nearly concerns not only the people of our chief city, but of our whole State, and we therefore feel it to be our duty to present our views for whatever they may be worth.

The drift of opinion is unquestionably towards supervision and control of maritime quarantine and inter-state communication by the General Government. The opposition to this is based chiefly upon the fact of undue interference with rights of the States. Inasmuch, however, as this opinion, if not restricted to them, in fact, is voiced for the most part by State and municipal health officers, whose personal interests might be jeopardized, it is a question as to how much their opinion should be discounted. We yield to no man in our devotion to home rule, nor in the depth and earnestness of our conviction, which is a matter of inheritance, as well as independent judgment, that the preservation of rights reserved to the States under the Constitution, is of the last importance and absolutely essential to the continuance of this government as a free republic; but we realize also that certain other rights were relinquished to the General Government for the manifest good of the individual States themselves and among these

was the right to declare and prosecute war against a foreign enemy. To question the necessity for such an arrangement would be absurd. With each State in full control of its own troops, volunteers, not regulars, whose commanding officers, in some instances at least, owed their positions, not to the possession of ability and fitness, but to personal or political power, the necessary concert of action between them would be simply impossible. That it is no fancy picture was shown by the very want of harmony between the United States and State officials in the epidemic just ended. Now, the foreign enemy, represented by the pestilential diseases, is far more to be dreaded than an army with banners. With the latter, peace can be declared, but with the former there is no peace—they never give up short of complete extermination. Year in and year out they threaten our shores, and armed with their deadly toxins, they commit infinitely greater havoc in the life history of a nation than ever comes from war in the ordinary meaning of that word. Our resistance to infectious diseases is truly a fight, and should be war to the knife, for their merciless hoards fight under the black flag and never give quarter. This being true, it is perfectly clear to our mind that it would be the part of wisdom to commit the protection of our long coast line to the United States, aiding them when need arises, with both men and treasure, and that in doing so we would, in no way, violate the constitution of our country, even as our State-rights men construe it, but we would, on the contrary, really obey it, and at the same time more effectually protect the people.

As a further expression of our views, we take pleasure in printing the subjoined able editorial from a recent issue of the *Nashville American*.

We are surprised to find in the *Memphis Commercial Appeal* a lengthy and labor-ed editorial article in opposition to National control of the quarantine service. It would be expected that Memphis, with its present sad and disastrous experience, would be glad to accept the strong arm of the National Government in protection from future ravages of the yellow death. And such, no doubt, is strongly the popular sentiment of Memphians. The *Scimitar* takes that view, but the *Commercial Appeal* sacrifices sense for sentiment and devotes a column of its space to arguing that quarantine is a prerogative of State sovereignty that must not and shall not be surrendered.

Were an enemy's fleet in the Gulf of Mexico, threatening to ascend the Mississippi River and lay waste the cities on its banks, it would be as sensible to reject Government aid in defense of such an attack as it is to refuse Government protection against the invasion of a deadly epidemic. The States would surrender no right by relinquishing the quarantine privilege, but impose an expensive and troublesome duty on the Federal Government. The Southern States should count themselves peculiarly fortunate if they could induce the Federal Government to undertake such a work. The South would derive by far the greatest benefit from an effective quarantine service.

Local quarantine has, in the present epidemic and all previous epidemics, proved a farce and a failure. Barring Louisiana, no Southern State maintains a coast quarantine that is worthy of the name, and Louisiana now suffers bitterly from the negligence of her neighbors.

State quarantines are rendered ineffective by mutual jealousies that prevent co-operation, and they are overridden by the competition for tropical trade. They are necessarily weak because the States are not strong enough to support them financially or otherwise, and the lack of unity added to this makes them entirely ineffective.

An epidemic disease is something that really concerns the whole country, or in the narrowest sense a large portion of it. It affects interstate commerce. The trade of New York and Chicago has suffered because of yellow fever in the South. Nashville has suffered materially in that way, though there has been no epidemic of yel-

low fever within two hundred miles of this city. These facts make it the duty of the general government to undertake the prevention of future invasions of the yellow fever.

The *American* is thoroughly Democratic on the question of local self-government, and would never consent to yield that principle in any essential respect, but quarantine is a matter very much like carrying the mails or the regulation of commerce between the States. Its exercise by the National Government would afford us the assistance and protection in a much more marked degree than it would enforce power. We would surrender no liberties because quarantine was entrusted to the Federal Government instead of the several States.

But the strongest argument in favor of Federal quarantine is that State quarantines are failures, and this kind of yellow fever paralyzing a large portion of the country every few years must be stopped. The Government can stop it and it behooves the Southern cities to invoke its strong arm in their defense.

For carrying out the idea of a national quarantine two plans have been suggested; one is to commit it to the Marine Hospital Service, which bureau has for many years been engaged in quarantine work, by enlarging its powers and adding to its duties; the other is the establishment of a Department of Public Health.

In pursuance of the former plan Senator Caltery, of Louisiana, introduced in the Senate the following bill:

A BILL

AMENDING "AN ACT GRANTING ADDITIONAL QUARANTINE POWERS AND IMPOSING ADDITIONAL DUTIES UPON THE MARINE-HOSPITAL SERVICE," APPROVED FEBRUARY FIFTEENTH, EIGHTEEN HUNDRED AND NINETY-THREE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That "An Act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," approved February fifteenth, eighteen hun-

dred and ninety-three, be amended by striking out the following words in section one: "And with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with this Act," and striking out section three and inserting the following in the place of said section:

"SEC. 3. That immediately after the passage of this Act the Secretary of the Treasury shall make such rules and regulations as are necessary to prevent the introduction into the United States of any infectious or contagious disease from any foreign port or place, or the spread of such diseases from one domestic port to another, and such necessary rules and regulations as shall be observed by vessels or vehicles departing from foreign ports or places for ports or places in the United States to secure the best sanitary condition of such vessel or vehicles, their cargoes, passengers, and crews, which rules and regulations shall be published and communicated to and enforced by consular, quarantine, and custom officers of the United States and the State and local quarantine officers of the United States. All rules and regulations made by the Secretary of the Treasury shall operate uniformly, so far as climatic conditions will justify, in the interest of security against the introduction or spread of said infectious and contagious diseases, and shall not discriminate against any port or place. None of the penalties herein imposed shall attach to any vessel from a foreign port, or owner or officer thereof, until a copy of this Act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days in the port from which said vessel sailed, and the certificate of such consul or consular officer, over his official signature, shall be competent evidence of such posting in any court of the United States. Nor shall the penalties imposed by this Act attach to any common carrier or officer, agent or employee of any common carrier crossing the border of the United States until a copy of this Act, with the rules and regulations made in pursuance thereof, has been published and made publicly known.

"At any port or place in the United States where the Secretary of the Treasury shall deem it necessary for the pre-

vention of the introduction of contagious or infectious disease from a foreign port or place that incoming vessels, vehicles, or persons shall be inspected by a national quarantine officer, such officer shall be designated or appointed by the Secretary of the Treasury, on recommendation of the Surgeon-General of the Marine-Hospital Service, and at any such port or place no vessel, vehicle, or person from a foreign port or place shall be admitted to entry or enter without the certificate of said officer that the United States quarantine regulations have been complied with.

"Any vessel sailing from any foreign port without a United States consular bill of health, and arriving within the limits of any collection district of the United States, and not entering or attempting to enter any port of the United States, shall be subject to such quarantine measures as shall be prescribed by regulations of the Secretary of the Treasury, and the cost of such measures shall be a lien on said vessel, to be recovered by proceedings in the proper district court of the United States and in the manner set forth above as regards vessels from foreign ports without bills of health and entering any port of the United States.

"National quarantine stations now in operation shall be conducted in accordance with the provisions of this Act, and the Supervising Surgeon-General, with the approval the Secretary of the Treasury, is authorized to designate and mark the boundaries of the quarantine grounds and quarantine anchorages for vessels, which are reserved for use at each United States quarantine station; and any vessel, or officer of any vessel, or other person, trespassing upon such grounds or anchorages, in disregard of the quarantine rules and regulations, shall be deemed guilty of a misdemeanor and subject to arrest, and, upon conviction thereof, be punished by a fine of not more than three hundred dollars, or imprisonment for not more than one year, or both, in the discretion of the court.

"And any master, owner of any vessel, or any person violating any rule or regulation made in accordance with this Act, relating to inspection of vessels, or relating to the prevention of the introduction of contagious or infectious disease, and any master, owner, or agent of any vessel

making a false statement relative to the sanitary condition of said vessel or its contents, or as to the health of any passenger or person thereon, shall be deemed guilty of a misdemeanor and subject to arrest, and, upon conviction thereof, be punished by a fine of not more than five hundred dollars or imprisonment for not more than one year, or both, in the discretion of the court.

"Medical officers of the United States, duly clothed with authority to act as quarantine officers at any port or place within the United States, and when performing such duties, are hereby authorized to take declarations and administer oaths in matters pertaining to the administration of the quarantine laws and regulations of the United States.

"The Secretary of the Treasury shall, whenever in his judgment is necessary, make rules and regulations to prevent the introduction of infectious or contagious diseases into one State or Territory, or the District of Columbia, from another State, Territory, or the District of Columbia, and when such rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities when the State or municipal authorities will undertake to execute or enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations, or other rules or regulations made under the provisions of this Act, the President shall execute and enforce the same, and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose.

"Whenever yellow fever, cholera, plague, or typhus fever has passed the quarantines of the United States, or in any manner any one of these diseases has gained entrance or has appeared within the limits of any State, Territory, or the District of Columbia, the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, shall be supreme and have precedence of State or municipal quarantine laws, rules, or regulations, and the President is authorized to enforce the same within the limits of any State, Territory, or the District of Columbia, and to control the movement of vessels, rail-

way trains, vehicles, or persons within any State, Territory, or the District of Columbia, to prevent these diseases from spreading from one State, Territory, or the District of Columbia to another State, Territory, or the District of Columbia, and to prevent unnecessary restrictions upon interstate commerce; and whenever, in accordance with the rules and regulations made as herein authorized to prohibit or permit the movement of vessels, railway trains and vehicles, or transportation of persons, prohibitions or permits have been made or granted, any person violating said prohibition or permit shall be deemed guilty of a misdemeanor, and shall be subject to a fine of not more than one thousand dollars, or imprisonment for not more than twelve months, or both, at the discretion of the court; and any violation of said prohibition or permit shall be reported to the United States district attorney for the district in which the offense has been committed, who shall thereupon institute necessary proceedings for the recovery of the penalty herein imposed."

That section six of said Act shall be amended to read as follows:

"That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest national or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel, or inspection of any vessel not infected at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be permitted to enter and admitted to entry at any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities, the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station."

That section eight of said Act shall be amended to read as follows:

"That whenever the proper authorities of a State shall surrender to the United States the use of the buildings, grounds,

and disinfecting apparatus at a State or municipal quarantine station, the Secretary of the Treasury shall be authorized to purchase them at a reasonable compensation, or pay a reasonable rent for their use if in his opinion they are necessary to the United States; and the expense of said purchase or rental is made payable from the epidemic fund."

We would call attention to the fact that the author of this bill is a Southern Democratic Senator, and doubtless a thorough believer in the doctrine of State Sovereignty; and also to the fact that he represents Louisiana, whose quarantine facilities and methods are unexcelled anywhere.

In pursuance of the second plan a bill has been proposed establishing a "Department of Public Health." We haven't the space to print this long bill in full, but the following extracts (*italics ours*) will be sufficient for our purpose:

SEC. 2. That the Department of Public Health shall be under the control and management of a Commissioner of Public Health. Said Commissioner of Public Health *shall be appointed by the President of the United States*, by and with the advice and consent of the Senate, and his term of office shall be six years; he shall be a regularly educated physician holding a diploma conferred upon him by a legally incorporated medical college in the United States; he shall have had at least ten years' experience in the practice of medicine, and shall hold a membership in one or more reputable sanitary or medical associations in the United States.

He shall be entitled to a salary of \$5,000 per annum, and his necessary traveling expenses.

That the Commissioner of Public Health shall semi-annually on the first Tuesdays of April and October of each and every year, and at such other times as he may designate, call to meet in the city of Washington, D. C., an advisory council, to be composed of the secretary or executive officer of each State and Territorial board of health, and one officer learned in the law, detailed by the Attorney-General of the United States from the Department of Justice; and that the necessary traveling expenses of the said advisory

council incident to their attendance on the meeting of the said council shall be paid on vouchers to be furnished by the Secretary of the Treasury, said meetings not to include more than six days at each session, unless a longer continuance shall be authorized by the President of the United States.

That the Commissioner of Public Health may appoint an Assistant Commissioner of Public Health, who shall be a physician in good and regular standing in the medical profession, and skilled in sanitary science, and fix his salary at not to exceed \$3,500 per annum and all actual and necessary traveling expenses incurred in the performance of his duties as Assistant Commissioner in said Department. * * *

SEC. 3. That the Department of Public Health hereby created shall succeed to all the powers and duties now and heretofore conferred upon the Marine Hospital Service, or any officer thereof, by any law of Congress, except as hereinafter provided, and shall occupy the building now occupied by the Marine Hospital Service for its offices, and shall have under its exclusive control and management all offices, officers, laboratories, appurtenances and property of whatever name and nature, which are lawfully in possession of the said Marine Hospital Service at the time of the passage of this Act, but it is hereby provided that there shall be in said department a bureau to be known as "The Bureau of the Marine Hospital Service," which shall be under the exclusive control of the Commissioner of Public Health, and all laws governing the appointment to official positions in said Marine Hospital Service, and to promotions in said service, shall continue in full effect, and all funds now or hereafter appropriated for the Marine Hospital Service by Congress shall continue to be disbursed under the supervision of the Commissioner of Public Health by the direction of the Secretary of the Treasury until otherwise provided by law, it being the intent and purpose of this Act to continue the Marine Hospital Service and to confer all duties relating to quarantine and public health upon the department hereby created.

SEC. 34. Sec. 1, Chapter 19, Supplemental to the Revised Statutes, Vol. 1, second edition, revised and continued (page 637) is hereby amended so as to read as follows:

Sec. 1. *Be it enacted, etc.*, That the

medical officers of the Marine Hospital Service of the United States shall hereafter be *appointed by the President*, by and with the advice and consent of the Senate, and no person shall be so appointed until after passing a satisfactory examination in the several branches of medicine, surgery and hygiene before a board of medical officers of said service. Said examination shall be conducted according to rules prepared by the Commissioner of Public Health, and approved by the advisory council and the President.

There are several objections to this bill, but the most important—and to our mind fatal one—is the injection of politics into our quarantine system, for the President has to appoint not only the Commissioner but all the medical officers—the latter after an examination, it is true, but the rules governing the examinations are to be made by the Commissioner. Admitting that the President would always appoint a good man, he would almost surely be inexperienced in that particular work, and by the time he thoroughly learned it he would have to give place to another inexperienced man, in all probability. Then, too, there are many able men “learned in sanitary science” who, however accomplished in other respects, are lacking in that rare, but in this case most important, gift of executive ability. Few men are born with this peculiar talent to any marked degree, and most successful administrators become such by close application and long experience. Is it likely that a political appointee from civil life, changed every four or eight years, would make a first-class executive? We think not.

The Marine Hospital Service, as at present constituted, is as far from the baneful influence of “practical politics” as are the Army and Navy. Its members are appointed solely for fitness, and their business in life is fighting disease—largely through quarantine work. They are seasoned veterans in that peculiar warfare.

Their commanding officer, the Surgeon-General, is always one of their most experienced men, and while it might happen that he was not the man in the service best fitted for that position, it would always be true that he had been thoroughly trained in the business. And if it were our personal business involving great consequences to us, as the proper management of our quarantine service does to the people of our country, we would not hesitate a moment in deciding in favor of the trained experts—and we do not believe the candid reader would, either.

Another objection, we think, is the large and unwieldy advisory council, strange as it may sound, coming from one of the beneficiaries of that feature with its delightful semi-annual visit to our beautiful capital city, with all expenses paid by Uncle Sam. While we might be able to tell the Commissioner of Public Health, recently appointed from civil life, something he did not know about disinfection and quarantine, it would be much better to have some one in charge who could tell us something we did not know, perhaps. And, besides, there would be so many conflicting views, probably, and so many modifications of the rules for particular localities desired that confusion rather than enlightenment might be the result. While we do not deny that, in many instances, there is wisdom in a multitude of counsellors, we have come to the deliberate conclusion, after considerable experience, that in sanitary matters an enlightened despotism—an organization with the power and the will to override merely individual or local preferences in the interests of the whole people, would be best. We are afraid that our confreres will think this rank heresy, but it is what we believe, nevertheless.

As the *Sanitarian* is the leading health journal of the country, we think it proper,

without expressing any opinion of our own as to the personal allusions therein contained, to print the following editorial, which appeared in the last number.

"DEPARTMENT" OF PUBLIC HEALTH.

Foremost among the advocates of this measure is the Journal of the American Medical Association, edited by Dr. John B. Hamilton, the whilom Surgeon-General of the Marine Hospital Service, who, while occupying that office, vigorously contended against and finally by the aid of political influence, overcame and supplanted the National Board of Health appointed by act of Congress and organized in 1879. The usefulness of that organization is better appreciated now than it was when Dr. Hamilton so successfully contended against it, hence the demand for a renewal with such a modification as will secure the co-operation of the State and local boards of health with the Marine Hospital Service, but not to overcome and supersede that service. Indeed, rather to extend its scope with special reference to the prevention of "shot-gun" quarantines and other needless obstructions to health, trade and commerce; but not after the manner suggested and advocated by Dr. Hamilton in the proposed bill, on other pages of this issue.

The tables are now turned, and Dr. Hamilton's ambition to supersede Surgeon-General Wyman is so great that he now advocates the subordination, at least, if not the obliteration, of the service, which, when he was chief of it, seemed to him amply sufficient to answer the needs of a national health service in all its details. To this end he prepared and secured the enactment of such laws as gave him power to contend against inland epidemics wholly apart from maritime quarantine regulations. Dr. Hamilton's administration of those laws, however, was not such as to win the approbation of the State and local sanitary authorities; and this circumstance, perhaps, he thinks sufficient to justify his changed attitude. Dr. Hamilton was not a member of the committee who formulated the bill referred to, yet it is scarcely less remarkable in its change of attitude, as the sentiment of the association, from the report Dr. Jerome Cochran, chairman of the committee, approved of the year before, than is Dr. Hamilton's. It is, to say the least, a remarkable coin-

cidence. The title of the bill is wholly inconsistent with the subjacent text. It purports to be a "department," while it provides for a bureau. It incorporates no additional function that is not already authorized by the laws governing in the Marine Hospital Service. Excepting the concessions to State and local authorities to supersede or add to the provisions of the National quarantine laws, which concessions all competent observers now recognize as being accountable for the shot-gun quarantines and other needless obstructions to health, travel and commerce—barring these exceptions, for the repeal of which there is now a universal demand—the Marine Hospital Service, as at present organized and equipped, is competent to the exercise of every function provided for in the proposed bill.

As reported by Dr. Cochran to the A. M. Association, 1895:

"1. We may desire and advocate a plan to deprive the Marine Hospital Service of its public health functions, and for the establishment of an entirely new department; or,

"2. We may accept the Marine Hospital Service just as it stands as a department sufficient for our present use; or,

"3. We may endeavor to improve the Marine Hospital Service and make it a more satisfactory National Health Department than it now is.

"It would seem that this last method promises to be the most fruitful of beneficent results; and the question then arises as to the modifications that may be wisely made in the existing law."

Suggestions follow for utilizing the Marine Hospital Service as the groundwork for a national health service, with such amendments and additions to the laws governing it as would comprehend the co-operation of the State and local boards of health.

To this end there are no more experienced or better accomplished physicians in the United States, in both the theoretical and practical work necessary for an effective national sanitary service than are to be found in the medical corps of the Marine Hospital Service. Their scientific investigations in laboratory work will compare favorably with any that have ever been made elsewhere. The investigations relate to the cause, nature, history and prevention of epidemic diseases, and their

practical utility in preventive medicine generally is of universal recognition. Moreover, admirably formulated regulations have been promulgated for the prevention of the spread of yellow fever and other infectious diseases from one locality to another. The collection of information regarding the prevalence of infectious and epidemic diseases generally, foreign as well as domestic, has been systematized, and is in practical operation; and State and local authorities are regularly supplied with such collective service by a weekly bulletin.

Indeed, the foundation of a national board of health is already laid. The proposition to extend its scope by such emendations and additions to the laws now governing it as would secure the co-operation of the sanitary authorities of the States severally and jointly, as suggested by the late Dr. Jerome Cochran, after a critical examination, is eminently commendable. And in this reference to the judgment of Dr. Cochran it should be borne in mind that it was the deduction of a practical sanitarian—of one who had devoted many years of his professional life to preventive medicine, and after he had been, as chairman of a committee, specially appointed to consider the question of a "Department of Public Health." Considering all the circumstances and the relations of the leaders of the proposition to supersede the Surgeon-General of the Marine Hospital Service, to the present chief of that service, we can but regard the proposition as being alike discreditable to both the American Medical and the American Public Health Associations.

The proposition reflects political preference to practical knowledge of preventive medicine; it deserves not only the reprobation of every practical sanitarian, but of every person who is alive to the importance of an effective health service.

[POSTSCRIPT.]

WASHINGTON, Nov. 15, 1897.

MR. EDITOR: Will you kindly permit me to correct a statement made in the editorial columns of your esteemed journal of the issue of November 11, 1897, under the caption, "A Department of Public Health." I refer to the statement in the second paragraph, which reads as follows: "The American Medical Association,

at the Philadelphia meeting of this year, adopted a draft for a bill to establish a department of public health." I am informed by the Recording Secretary of the Association, and also by others who were present, that the American Medical Association did not adopt a draft for a bill to establish a department of public health.

The facts regarding the proposed bill, referred to in your editorial, are as follows: At the last meeting of the American Medical Association the Committee of the Association on Department of Public Health, through its chairman, Dr. U. O. B. Wingate, Wisconsin, read a report of the committee, in which was included the draft of a bill providing for a Department of Public Health. The report of the committee was received by the Association, and the committee continued. As the proposed bill was presented during the last hours of the meeting of the Association, when few were present, it was not discussed, adopted or rejected by the Association. An opinion on the merits or demerits of the proposed bill was not expressed by the Association. In fact, the American Medical Association, the year previous, at the Atlanta meeting, in adopting a report of its Committee on Department of Public Health, which report recommended that the committee be authorized to draft a bill which should be in accord with recommendations of their report, expressed views which are entirely opposite to those embraced in the report of the committee at the last meeting, recommending the proposed bill for a Department of Public Health. It is proper to state that by reason of the death of Dr. Jerome Cochran, the chairman of the committee in 1896, a new chairman was appointed.

You are, undoubtedly, misled in the statement in your editorial by the editorial statement in the Journal of the Association, as was the case with some members present at the last meeting of the American Public Health Association. The statement that the proposed bill was adopted by the American Medical Association was announced at that meeting, which, undoubtedly, influenced members in voting for it. However, there were only nineteen votes for the bill and seven against it at the meeting of the Public

Health Association, whose average membership is about eight hundred.

Very truly yours,

H. W. AUSTIN, M. D.

—From Boston Med. and Surg. Journal,
Nov. 25, 1897.

[We find that the statements in regard to the American Medical Association contained in the above communication are substantially correct, and publish them with pleasure. Practically it seems to be a question whether the proposed Department of Public Health should swallow or be swallowed by the Marine Hospital Service.—Ed.]

REVIEW OF DISEASES FOR NOVEMBER, 1897.

(SEVENTY-EIGHT COUNTIES REPORTING.)

Eighty-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

MEASLES—Burke, 4; Catawba, 3; Guilford 3; Iredell, in all parts; Johnston, 2; McDowell; Moore, 1; Orange; Pitt; Sampson, 1; Stokes, in all parts; Surry, epidemic, over 600 cases; Washington, 2; Watauga, 20.—14 counties.

WHOOPING-COUGH—Alamance; Davidson, epidemic; McDowell; Martin, 15; Mecklenburg, 10; New Hanover, 3; On-

slow, 5; Randolph, 12; Robeson, in nearly all parts; Rockingham; Stanly, Surry, 12; Wake, 3; Washington, 3; Wayne, 1—15 counties.

SCARLET FEVER—Cumberland, 5; Guilford, 1; Mecklenburg, 5; Rockingham; Rowan, 2; Stokes, 2; Surry, 1; Wake, 3.—8 counties.

DIPHTHERIA—Buncombe, 3, quarantined and recovered; Catawba; Davie, Guilford, 1; Henderson, 4; McDowell, 2; Mecklenburg, 3; New Hanover, 1; Northampton, 1; Pasquotank, 1; Person, 1; Rowan, 1; Stokes, 2; Surry, 1; Wake, 1; Washington, 1.—16 counties.

TYPHOID FEVER—Alexander, 1; Ashe, 3; Beaufort, 2; Bertie, 1; Clay, 4; Cleveland, 4; Columbus, 7; Gaston, 4; Halifax, 8; Haywood, 11; Henderson, 6; Hertford, 1; Iredell, 4; McDowell; Macon, 6; Madison, 25; Martin, 1; Mecklenburg, 12; Mitchell, 2; New Hanover, 3; Pasquotank, 2; Pender, 8; Pitt, 2; Richmond, 1; Robeson, in nearly all parts; Rockingham; Rowan, 3; Sampson, a few; Stokes, 1; Surry, 3; Union, 10; Wake, 6; Washington, 1; Wilkes, 1 or 2; Yadkin, 1; Yancey, a few.—36 counties.

MALARIAL FEVER—Alamance, a few; Bertie, in all parts; Bladen; Catawba, along badly drained creeks; Chowan; Columbus; Cumberland; Edgecombe; Greene, in all parts; Halifax; New Hanover, in all parts; Northampton; Onslow; Orange; Pasquotank; Person, a few; Pitt; Randolph; Robeson; Sampson; Washington; Wayne.—22 counties.

MALARIAL FEVER, PERNICIOUS—Bertie, 1; Edgecombe, 2; Pasquotank, 3; Pitt, 1; Wayne, 1.—5 counties.

MALARIAL FEVER, HEMORRHAGIC—Bladen, 1; Cumberland, 1; Edgecombe, 2; Halifax, 1; Johnston, 1; New Hanover, 3; Northampton, 3; Onslow, 2; Randolph,

2; Robeson, 2; Wake, 1; Washington, 2.—12 counties

INFLUENZA—Alamance, Columbus, Duplin, to a limited extent; Granville, generally; Greene, in all parts; Transylvania, Yadkin, to a limited extent.—7 counties.

MUMPS—Orange.

PNEUMONIA—Cleveland, Duplin, Gaston, Onslow, Person, Transylvania, Wake, a few cases; Warren, in all parts.—8 counties.

TONSILLITIS—Jackson.

CHOLERA, IN HOGS—Ashe; Clay.

ROUP, IN FOWLS—Clay.

STAGGERS, IN HORSES—Edgecombe.

The reporters from the following counties state that they know of no diseases worthy of mention: Cabarrus, Caldwell, Carteret, Chatham, Cherokee, Durham, Forsyth, Franklin, Perquimans, Polk, Rutherford, Swain, Vance and Wilson.

No reports have been received from the Superintendents of Health of Anson, Craven, Cumberland, Lincoln, Montgomery and Nash.

Summary of Mortuary Reports for November, 1897 (Twenty-two Towns).

Only those towns from which certified reports are received are included:

	<i>White. Col'd. Total</i>		
Aggregate population	66,189	52,371	118,560
Aggregate deaths	74	78	152
Representing temporary annual death rate per 1,000	13.4	17.9	15.2
<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total</i>
Typhoid fever	3	2	5
Malarial fever	3	1	4
Diphtheria	1	0	1
Whooping-cough	0	1	1
Pneumonia	2	5	7
Consumption	6	15	21
Brain diseases	11	2	13
Heart diseases	5	2	7
Neurotic diseases	1	1	2
Diarrhoeal diseases	9	8	17
All other diseases	30	37	67
Accident	3	3	6
Suicide	0	1	1
	74	78	152
Deaths under five years	14	23	37
Still-born	5	11	16

Mortuary Report for November, 1897.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption. In Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accidental.	Suicide.	Violence.	TOTAL DEATHS.			
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	Deaths in der 5 Years.	Still-born.
ASHEVILLE	W.	8,000	13,000	6.0	11.1																4	12	5	2
Dr. M. H. Fletcher.	C.	5,000		12.8																			8	2	5
Durham	W.	4,000	6,000	.....	.....									1	1									
Dr. J. M. Manning.	C.	2,000																				6	
GOLDSBORO	W.	3,700	5,700	9.7	21.0											1	2							
T. H. Bala, Sec. B. H.	C.	2,000		42.0									1					4	1				3	10	2
GREENSBORO	W.	5,500	8,000	4.4	15.0											1	2							
J. S. Meaux, City Clk.	C.	2,500		38.4						1			2					2					8	10	5	1
HENDERSON	W.	2,250	4,250	21.3	14.1		1							1		1	1							
Dr. F. R. Harris.	C.	2,000		6.0														1					1	
HILLSBORO	W.	400	700	0.0	0.0																			
Dr. C. D. Jones.	C.	300		0.0																			0	0
LENOIR	W.	800	1,100	15.0	10.9	1															1	1		
Dr. A. A. Kent.	C.	300		0.0																			0	
MARION	W.	700	1,000	16.0	12.0	1															1	1		
Dr. B. A. Cheek.	C.	250		0.0																			0	
OXFORD	W.	1,150	2,300	10.4	10.4									1							1	2		1
Dr. G. A. Coggeshall.	C.	1,150		10.4											1								1		2	2
RALEIGH	W.	8,000	15,000	22.5	18.4			1	1				4	2		3	4				15	8	5	1
A. F. Sate, Clk B. H.	C.	7,000		3.7									5					2					8	2
ROCKINGHAM	W.	1,300	1,750	6.0	6.8																			
Dr. W. M. Fowkes.	C.	450		26.7				1															1	
ROCKY MOUNT	W.	1,600	2,600	7.5	4.6									1							1	1		
Dr. G. L. Wimberley.	C.	1,000		0.0																			0	
SALEM	W.	4,100	4,550	2.9	2.6																1	1		
S. C. Burner, Mayor.	C.	450		0.0																			0	
SALISBURY	W.	3,500	5,500	20.6	17.4							1	1			1	3				6	8		
Dr. John Whithead.	C.	2,000		9.6				1										1					2	
SCOTLAND NECK	W.	775	1,200	31.0	20.0												2				2	2		2
J. A. Perry, Mayor.	C.	425		0.0																			0	
SOUTHPORT	W.	800	1,200	30.0	20.0											1	1				2	2		
M. K. Ruark, City Clk.	C.	400		0.0																			0	
TARBORO	W.	1,200	2,500	0.0	4.8																0	1		
Dr. L. L. Statton.	C.	1,300		9.2																			1	
WARRENTON	W.	961	1,760	12.3	6.8																1	0		
Dr. P. J. Macon	C.	796		0.0																			0	1
WASHINGTON	W.	3,000	5,500	12.0	15.3									1		2	2				3	7	1	
Dr. D. T. Tayloe.	C.	2,500		19.2														2					4		1
WELDON	W.	700	1,450	34.3	16.5	1										1					2	0		
J. T. Gooch, Mayor.	C.	750		0.0																			0	2
WILMINGTON	W.	10,000	25,000	18.2	22.1		1					1	3	2		1	7	1			16	47	2	1
Dr. W. D. McMillan.	C.	15,000		24.8					1					5		1		1	24				31	6	4
WILSON	W.	2,500	4,500	9.6	5.3										1		1				2			
Dr. N. Anderson.	C.	2,000		0.0																			0	2
WINSTON	W.	5,200	10,000	16.1	15.6								1	1	2	2	1				7	2	1	
Dr. John Bynum.	C.	4,800		15.0											2			2	1				6	4	1

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition there were eleven deaths of non-residents, eight white and one colored of consumption, one white of pneumonia and one white of heart disease.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwick.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick		Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell	Dr. W. O. Spencer.	Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moyer.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. D. P. Whitley.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. A. G. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Conncill.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Small-pox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

BULLETIN
OF THE
North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington. S. WESTRAY BATTLE, M. D., Asheville W. H. HARRELL, M. D., Williamston. JOHN WHITEHEAD, M. D., Salisbury. RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	C. J. O'HAGAN, M. D., Greenville. J. D. SPICER, M. D., Goldsboro. J. L. NICHOLSON, M. D., Richlands. A. W. SHAFFER, SAN. ENG., Raleigh.
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SMALL POX IN NORTH CAROLINA.

This justly dreaded disease which has been hovering on our southern border for some time has crossed the line. Notice has been received from Dr. McMillan, Superintendent of Health of New Hanover county, that a case of small pox in Wilmington was reported to him on the 12th inst. The person affected is a negro train hand of the Atlantic Coast Line whose run was into South Carolina, and although the infection cannot be particularly traced, it was doubtless obtained in that State, as the disease has been and is more or less prevalent there. We are also informed by the Superintendent of Health of Columbus county (to the south of Wilmington) that this man on his last trip north mingled with the loafers around more than one of the stations he passed through.

Now, while the patient has been rigidly quarantined and every one known to have been exposed has been vaccinated, it is impossible to say how many may have been exposed of whom the authorities have, and in the nature of things could have, no knowledge. Fortunately our

chief city of Wilmington has an excellent local board of health, of which our own President, Dr. Thomas, is a member and, what is of almost equal importance, it is cordially and effectively supported in all sanitary work by the wide-awake Mayor, Dr. Wright, and the Board of Aldermen. We therefore feel assured that everything will be done in that community to prevent the spread of the disease. We wish we could feel the same degree of certainty that other communities which are gravely threatened would take promptly the steps necessary to prevent the introduction, or at any rate the spread of the disease should it effect an entrance, by encouraging and enforcing as far as possible general vaccination. The number of persons in the State who have never been vaccinated at all is something which, in view of a threatened invasion of small pox, is fearful to contemplate. The element most liable to infection is the poorer class of people, who are generally crowded together under unsanitary conditions. These must be vaccinated, if at all, free of charge. The law has provided for this by making it the duty of the County Superintendent of Health to do the work and

requiring the County Commissioners to furnish the money for vaccine. But County Commissioners are not infrequently very chary about spending money in unusual directions. We cannot understand though, how any board of intelligent men alive to the interests and welfare of their people could hesitate a moment in this matter. Leaving out entirely all considerations of life and health, the damage that would be caused to the purely material interests of a county by the appearance therein of a single case of small pox even would be greater by more than a hundred fold than any outlay for vaccine could be. The responsibility in this connection resting upon the County Superintendent and the County Commissioners is a heavy one, and failure to meet it promptly and fully would, in case of occurrence of small pox within their jurisdiction, not only entail the keenest regret, not to say remorse, personally, but also the reproaches and condemnation of their people. And justly so. The tendency to let things drift and to take the chances is very pronounced in many people, but this is too serious a matter to run any risks. It is generally accepted that a man has no right to unnecessarily jeopardize his own life. He certainly has no right to subject others to a grave danger which he could not only avert, but which it is made by law his duty to avert. We do earnestly hope that all Superintendents and County Commissioners in the threatened districts will realize their responsibility and act promptly.

For the benefit of our readers, and especially for the benefit of all health officers, Mayors, County Commissioners, school teachers and physicians we reprint those sections of the law bearing on our subject. These things are easily forgotten and a reminder is often helpful:

"SEC. 9. Inland quarantine shall be under the control of the County Su-

perintendent of Health, who shall see that diseases especially dangerous to the public health, viz.: small-pox, diphtheria, scarlet fever, yellow fever, typhus fever and cholera, are properly quarantined and isolated within twenty-four hours after the case is brought to his knowledge; and that after the death or recovery or removal of a person sick of either of the diseases mentioned, the rooms occupied and the articles used by the patient are thoroughly disinfected in the manner set forth in the printed instructions, both as to quarantine and disinfection, which shall be furnished him by the Secretary of the State Board of Health. The expense of the quarantine and of the disinfection shall be borne by the householder in whose family the case occurs, if able, otherwise by the city, town or county of which he is a resident. The failure on the part of a County Superintendent of Health to perform the duties imposed in this section shall be punished by the deduction of five dollars for each day of delinquency from his salary by the Board of County Commissioners; and if it shall appear to the satisfaction of the County Board of Health that the death of any person from the spread of the disease can justly be attributed to such failure of duty on his part, he shall be deposed from office and a successor immediately elected to fill out his unexpired term. Any person neglecting or refusing to comply with, or in any way violating the rules promulgated in the manner above set forth on the subjects of quarantine and disinfection, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined or imprisoned, at the discretion of the court, not less than five nor more than fifty dollars, or less than ten nor more than thirty days. In case the offender be stricken with the disease for which he is quarantinable, he shall be sub-

ject to the penalty on recovery, unless in the opinion of the Superintendent it should be omitted: *Provided, however,* that in any city or incorporated town having a regularly appointed medical health officer, who is a member of the County Board of Health, the duties assigned in this section to the County Superintendent of Health shall be performed by the said medical health officer for the people of his city or town, and he shall be subject to the same penalties for dereliction of duty at the hands of the Board of Aldermen or town commissioners as are directed to be imposed by the County Commissioners and County Board of Health upon the Superintendent: *Provided, further,* that the quarantine of ports shall not be interfered with, but the officers of the Local and State Boards shall render all aid in their power to quarantine officers in the discharge of their duties upon the request of the latter: *Provided,* that the custody and care of any child or other person may remain in custody of parent or family.

SEC. 10. When a householder knows that a person within his family is sick with either of the diseases enumerated in section nine, he shall immediately give notice thereof to the health officer or mayor, if he resides in a city or incorporated town, otherwise to the County Superintendent of Health, and upon the death or recovery or removal of such person, the rooms occupied and the articles used by him shall be disinfected by such householder in the manner indicated in section nine. Any person neglecting or refusing to comply with any of the above provisions shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one dollar nor more than fifty dollars.

SEC. 11. When a physician knows that a person whom he is called to visit is in-

fectured with small-pox, diphtheria, scarlet fever, typhus fever, yellow fever or cholera he shall immediately give notice thereof to the health officer or mayor, if the sick person be in a city or incorporated town, otherwise to the County Superintendent of Health, and if he refuses or neglects to give such notice of it in twenty-four hours he shall be guilty of a misdemeanor and shall be fined for each offence not less than ten nor more than twenty-five dollars. And it shall be the duty of the said county superintendent, health officer or mayor, receiving such notice of the presence of a case of small-pox, yellow fever, typhus fever or cholera within his jurisdiction, to communicate the same immediately by mail or telegraph to the Secretary of the State Board of Health. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and shall subject the delinquent upon conviction to a fine of not less than ten nor more than twenty-five dollars.

SEC. 12. The County Superintendents of Health, or the Board of Health in the several cities and towns where organized, otherwise the authorities of said cities or towns, shall cause a record to be kept of all reports received in pursuance of the preceding sections, and such records shall contain the names of all persons who are sick, the localities in which they live, the diseases with which they are affected, together with the date and names of all persons reporting any such cases. The Boards of Health of cities and towns wherever organized, and where not, the mayors of the same, and in other cases the County Superintendent of Health, shall give the school committee of the city or town, the principals of private schools and the Superintendent of Public Instruction of the county, when the schools are in session, notice of all such

cases of contagious diseases reported to them according to the provisions of this act. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and subject the delinquent upon conviction to a fine of not less than ten nor more than fifty dollars.

SEC. 13. The school committee of public schools, superintendents of graded schools and the principals of private schools shall not allow any pupil to attend the school under their control while any member of the household to which said pupil belongs is sick of either smallpox, diphtheria, measles, scarlet fever, yellow fever, typhus fever or cholera, or during a period of two weeks after the death, recovery or removal of such sick person; and any pupil coming from such household shall be required to present to the teacher of the school the pupil desires to attend, a certificate from the attending physician, City Health Officer or County Superintendent of Health, of the facts necessary to entitle him to admission in accordance with the above regulations. A wilful failure on the part of any school committee to perform the duty required in this section shall be deemed a misdemeanor, and upon conviction shall subject each and every member of the same to a fine of not less than one nor more than twenty-five dollars: *Provided*, that the instructions in accordance with the provisions of this section given to the teachers of the schools within twenty-four hours after the receipt of each and every notice shall be deemed performance of duty on the part of the school committee. Any teacher of a public school and any principal of a private school failing to carry out the requirements of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one nor more than twenty-five dollars.

SEC. 14. When a person coming to a city or a town from abroad or from some other place in this State is infected or has lately been infected with either of the diseases mentioned in section nine, the Local Board of Health, where such exists, otherwise the Board of Aldermen or Board of Town Commissioners, shall make effective provision in the manner which it judges best for the safety of the inhabitants by removing such person to a separate house or otherwise, and by providing nurses and other assistance and necessities, which shall be at the charge of the person himself or his parents, where able, otherwise at the charge of the city, town or county to which he belongs.

SEC. 15. The Board of Health, or in case there is no Board of Health, the Board of Aldermen or Town Commissioners of a city or town near to or bordering upon either of the neighboring States, may appoint, by writing, suitable persons to attend at places by which travelers may pass from infected places in other States, who may examine such travelers as may be suspected of bringing any infection dangerous to the public health, and if it need be may restrain them from traveling until licensed thereto by the Board of Health or Board of Aldermen or Town Commissioners of the city or town to which they may come. A traveler coming from such infected place who, without such license, travels within this State (except to return by the most direct route to the State whence he came) after he has been cautioned to depart by the persons so appointed, shall be isolated or ejected, at the discretion of the Local City or Town or County Board of Health; and upon refusal to comply with the regulations of the said Boards of Health or either of them on this subject shall be guilty of a misdemeanor, and upon conviction shall be fined not less than twenty-five nor more

than fifty dollars or imprisoned not more than thirty days. And all common-carriers bringing into this State any such persons as named above are hereby required to return them to some point without this State, if required by a City, Town or County Board of Health. Nothing in this section shall prevent the State Board of Health in time of epidemics from appointing such additional examiners as they may deem necessary to the preservation of the public health.

SEC. 16. No railroad corporation or other common-carrier or person shall convey or cause to be conveyed through or from any city, town or county in this State, the remains of any person who has died of small-pox, measles, scarlet fever, diphtheria, typhus fever, yellow fever or cholera, until such body has been disinfected and encased in such manner as shall be directed by the State Board of Health, so as to preclude any danger of communicating the disease to others by its transportation; and no local registrar, clerk or health officer, or any other person, shall give a permit for the removal of such body until he has received from the Board of Health of the city, or from the Board of Aldermen or Town Commissioners, or the County Superintendent of the city, town or county where the death occurred, a certificate stating the cause of death and that the said body has been prepared in the manner set forth in this section; which certificate shall be delivered in duplicate to the agent or person who receives the body, and one copy shall be pasted on the box containing the corpse; said certificate shall be furnished in blank by the transportation company when no Local Board of Health exists. During an epidemic of cholera all common-carriers shall so arrange their water-closets as to catch in water-tight receptacles the dejections of all persons using

the same and shall disinfect the said dejections in a manner satisfactory to the State Board of Health before emptying them. Any person violating the provisions of this section shall be punished by fine not exceeding twenty-five dollars.

SEC. 17. In times of epidemics of small-pox, yellow fever, typhoid fever, scarlet fever, diphtheria, typhus fever, cholera, the State Board of Health shall have sanitary jurisdiction in all cities and towns not having regularly organized Local Boards of Health, and are hereby empowered to make all such regulations as they may deem necessary to protect the public health, and to enforce, in courts of justices of the peace, the same by the imposition of such penalties as come within the jurisdiction of a justice of the peace.

SEC. 23. *Vaccination.*—On the appearance of a case of Small-pox in any neighborhood all due diligence shall be used by the Superintendent of Health that warning shall be given, and all persons not able to pay shall be vaccinated free of charge by him, and the County Superintendent shall vaccinate every person admitted into a public institution (jail, county home, public school) as soon as practicable, unless he is satisfied upon examination that the person is already successfully vaccinated; the money for vaccine to be furnished by the County Commissioners. The authorities of any city or town, or the Board of County Commissioners of any county, may make such regulations and provisions for the vaccination of its inhabitants under the direction of the Local or County Board of Health, or a committee chosen for the purpose, and impose such penalties as they may deem necessary to protect the public health.

SEC. 24. The Board of County Commissioners of each county is hereby authorized at any time to call a meeting of

the County Board of Magistrates or Justices of the Peace to take into consideration the health interest of the people of their county, and, with the approval of the said Board of Magistrates, to levy a special tax, to be expended under the direction of a committee composed of the Chairman of the Board of County Commissions, the mayor of the county town and the County Superintendent of Health for the preservation of the public health.

SEC. 25. The authorities of any city or town are hereby authorized, not already authorized in its charter, to make such regulations, pay such fees and salaries and impose such penalties as in their judgment may be necessary for the protection and the advancement of the public health."

To anticipate further inquiries which we are sure will be made of us, as they have been, we desire to say that the Board does not furnish vaccine. Several years ago when there was a small pox scare, and that too a great deal more pronounced than the present one, we invested \$7 in a hundred points in the hope of expediting and encouraging vaccination as much as possible. The total demand amounted to just thirty points. It is needless to say that with our small appropriation we promptly retired from the vaccine business. But it can be obtained from the following reliable firms, the price in small lots being \$1 per 10 points:

National Vaccine Establishment, Washington, D. C.

Lancaster Vaccine Farm, Marietta, Pa.

Dr. Francis A. Martin, Roxbury Station, Boston, Mass.

New England Vaccine Co., Chelsea Station, Boston, Mass.

We would respectfully suggest to our cities and larger towns the advisability of having a pest-house at least "in sight" in case small pox should appear, for it is not always easy to secure a proper place

for isolation after the disease appears. We remember with much pride how our own city of Raleigh acted twelve or fifteen years ago when small pox was in the vicinity. Land was rented, a two-room cottage built, vaccine bought, physicians employed, and practically everybody vaccinated. In short, everything was snug and taut for the expected storm. "In time of peace prepare for war."

A NEW METHOD OF INDUCING SLEEP.*

DR. J. B. LEARNED, Northampton, Mass.

The sojourner on another planet has been heard from. He has made a diagnosis of the American situation. His telescope is said to have penetrated space and inter-space, and at one glance he has the old school, the new schools, the asylums, and the sanitariums, public and private, in their search after new remedies and new methods, and their offerings of the the newer remedies and the newest methods.

He says frail bodies, unstable nerve centers, emotional leakages, and an all-permeating and sensitive self-consciousness constitutes the pathology of the case.

Insomnia is one of the most prominent symptoms of this great body of sufferers. The causes he enumerates as follows: Feeble parentage, long years of in-door training of childhood; tea, coffee and tobacco; the electric motors and the mad rush for dollars and position.

My own experience with sleeplessness began in 1886. Some of the foregoing causes may have had their bearing, but it was the severe concussion of the brain following a collision with frozen earth that took me suddenly from the general practice of my profession and made me a searcher after means to invite sleep.

* Abstract of paper read at the late meeting of the British Medical Association at Montreal, Canada, in January *Sanitarian*.

I have given much attention from that time to the present to the general condition of sleeplessness, its causes and remedies. The drugs in use as hypnotics induce sleep by changes in nerve centers. Temporary, but no lasting, good comes to the owner of these nerve centers. At each successive call for hypnotics is a call also for larger doses. The result is finally, without doubt, more damaging than sleeplessness itself.

Can any measure be of service to us other than drugs sent through the minute capillaries to the citadel of life to induce that normal condition in which growth and repair of tissue goes on? After a long series of trials of mental occupation in the bed, and physical occupation out of the bed during sleeping hours, I came at last to inquire what is the normal condition of our physical organs and vital forces that make sleep necessary, and how can we in bed extemporize those conditions?

The answer to the first was, and is, as follows: The operations of every-day life require a sacrifice of brain and muscular tissue, every motion is accompanied by loss of cells in muscle, brain and nerve. The heart-beat, the respirations, the work done by digestive, secretory and excretory organs, all these wear in operation. They must be restored. Sleep is for this purpose. This condition of want we are made aware of by the tired sensation when normal conditions exist.

How can we extemporize the normal conditions when the abnormal prevail, and sleeplessness is upon us?

It was idle thinking that kept me awake. Cerebral activity, an automatic cellular commotion in one corner of the grey substance, presumably without my order or consent, seemed to run on forever like the babbling brook.

How can it be stopped? Turn off the belts, is the first reply that suggests itself when you take in the fact that grey mat-

ter cannot keep up this rattle without vital power. Turn off the belts, then.

Take away the power. I set about it in this way: I ordered the brain to take charge of the respiratory function. In place of the sixteen respirations, six or eight were directed per minute, made full, deep and regular. They were counted. This was the first duty of the brain. Added to this, I directed changed positions of body, and contractions of various groups of muscle, each group to be in use for a definite length of time estimated by the count of respirations.

The dorsal position, reaching from head-board to foot-board, brings into use one set of muscles; elevating the head a half inch brings into use another set of muscles; raising the foot immediately on the head going back to the pillow, and holding it the same length of time, then the next foot going up in like manner to go down at the direction of the brain; all these contractions and relaxations presided over by the brain without permitting any rests or vacations tend to equalize circulation.

A few minutes' experience of work done by the brain (in this way) under the direction and control of the will is very unlike the work done by the same brain not under direction and control. In the one case you may lie an hour, two hours, or three hours mayhap, thinking, or conscious that thinking is being done, and not have the tired sensation come to you such as precedes sleep. In the other case but a few minutes have elapsed with all these changes to be executed before the drowsy feeling begins to creep over you. Fatigue has already begun to call for rest. Fatigue is the sensation that precedes normal sleep. The brain begins to forget to count respirations. It forgets to lift up the left foot upon the going down of the right foot. It forgets that the bed-clothing was to be raised and dropped a half

dozen times as a fan to cool the surface of the body at regular intervals. It forgets the eyes were to open and shut as one part of the programme along with the inspiration and expiration. Soon each part has forgotten its duty and each part fails to do its duty, sleep comes.

This hypnotic is the normal one, a sense of mental and physical weariness; the result is a normal one. The body was in the normal position for sleep; the circulation of arterial and vital currents were normal.

The condition of these currents induce harmony in the cellular substance, and presumably it is in the power of all chronic sufferers of insomnia to acquaint themselves with a routine of mental and physical exertion and employment that will bring to them what I have been enabled to acquire as above.

Heart lesions and great nervous exhaustion would counsel only the mildest efforts; possibly contra-indicate altogether. The discreet family physician may be needed to give some assurance to the timid, and to guard the over-venturesome, perhaps.

I know of no means of inviting sleep so much at command, so safe, so effectual, as the foregoing mental and physical exertions under guarded and systematic control when the retiring hour comes and normal sleep refuses to come. I believe we shall ere long begin to acquaint ourselves with ourselves, and invite normal agents rather than abnormal agents to produce normal conditions. By this process we earn, not by the sweat of the brow, for such effort is not in order, but by patient, continuous application, what nature decreed we should earn, viz., the normal results of healthful activity—sleep.

"PUT MONEY IN YOUR PURSE."

Such was the advice of Iago to Roderigo. Put money in your *purse*, mind you. And now let us see what is a *purse*. The definition of a *purse* is: "A small bag or pouch of leather, crocheted silk or the like, used for carrying money; hence, anything for carrying money on the person."

The verb *purse* is: "To contract into wrinkles or folds; as, to *purse* the lips." It is to the abominable, if not dangerous, practice of making a *purse of the lips* that we wish to call attention. Not long ago a dirty colored urchin, with a red rag around her neck, betokening throat trouble, was noticed on a street car, and, as is so often the case with members of this race, she held her nickel for her fare in her mouth. This nickel was given to the conductor. A lady on the opposite side of the car handed the conductor a dime, and he gave her in change the nickel he had received from the negro child. The woman, having some difficulty in reaching her purse in an out-of-the-way pocket, to free both hands, placed the nickel between her own sweet lips, to our horror and disgust. On another occasion a negro woman was seen to take a silver piece from her mouth and lay it on the marble slab of the scales on which a steak which she had purchased had been weighed. A delicately-dressed lady, who was the next purchaser, had the piece of meat she bought placed on the same scales. There would be no danger here on account of the heat used in cooking the meat, but had the lady been more observing she would scarcely have relished the roast.

It is a common thing to see children put money into their mouths. Seeing that babies make their acquaintance with the world by putting everything they can

get hold of into their mouths, the danger may not be very great. There is some reason to believe that saliva has antiseptic properties. But one may readily conceive how diphtheria and other diseases, where the exchange from mouth to mouth has been made before the germs have been killed by drying, might easily be conveyed in this manner. It is a most disgusting and dirty practice, to say the least, and mothers should carefully teach their children never to put money in their mouths. Money in bank is much better.

—*Ohio Sanitary Bulletin.*

DI H HERIA.

Dr. Wm. H. Park says: Since Behring's first announcement of the antitoxic treatment of diphtheria has been so frequently and so fully treated in numberless publications, I will only dwell on a few points which seem to me of special interest.

Diphtheria antitoxin is singled out among antitoxins by its success in the treatment of diphtheria as vaccine is among viruses in its prevention of small pox. The blood of animals subjected to injections of diphtheria toxin is antitoxic, but not bactericidal.

The great mass of physicians, especially those of the greatest experience, are, at the present time, convinced that diphtheria antitoxin, in doses of 200 to 300 units, will confer immunity against diphtheria for from two to four weeks, and that the period can be lengthened at will by repeated injections. By this means many childrens' asylums are now kept free from diphtheria. In many thousands of cases no dangerous results have followed its use.

They are further convinced that when cases are seen early, that is, at a period when the disease can be readily diagnosed, but before general poisoning has set in, antitoxin can be relied upon to ar-

rest, with but very few exceptions, the progress of the disease.

They also believe that, taking cases as they are met with in practice—the disease just started or far advanced, the infection nearly pure or mixed—the clinical course of the disease is lessened in severity and shortened, and that more cases recover now than formerly. This improvement is most conspicuous in the most fatal forms, the operated cases of laryngeal diphtheria.—*Medical Progress.*

SOME QUESTIONS OF EN ASKED ABOUT DRINKING-WATER, AND THEIR ANSWERS.

BY B. C. LOVELAND, M. D., CLIFTON SPRINGS, N. Y.

In the routine of a doctor's life a great portion of his time is taken up in answering questions, and sometimes it requires much patience and the exercise of the greatest tact and ingenuity to give answers which will either satisfy the patient's curiosity or convince him of the wisdom of the order that may be the subject of his inquiries. In the present day, when the practice of medicine has become so far removed from the old-time practice of "physic," and the physician has to depend on his knowledge of physiological law, and the thoroughness with which he enforces obedience to physiological law among his patients marks his degree of success, the questions elicited by the regulations he may impose may be of great importance, for the patient to-day is a rare one who will go ahead and unquestioningly obey the advice of the physician, and who will not, like the proverbial boy, always have his mouth set for "Why?" In trying to induce my patients to drink the amount of water, nine or ten glasses a day, regarded as a physiological necessity by the medical profession, I have been met with a host of questions, mostly raised as

objections, some sample of which, with their answers, will comprise this paper, and my hope is that they will help some one who is trying to secure obedience to this part of nature's requirement.

"Will not water make me fat?" It is a well-known fact that most people dread becoming unduly fat, and this question is a very common one. The answer is, yes and no. Water will make you fat if it increases your ability to assimilate food, if by drinking more water you are enabled to take into the system more of the food that you eat. In no other way will it make you fat. There is evidently no fat in water. It will not make you fat if your digestion is perfect already, and you do not eat a great abundance of such foods as produce fat. In fact I have often seen people reduce fat, who needed to do so, by drinking a large quantity of water and using a properly regulated diet.

"Will not so much water strain my kidneys?" is another question which is asked almost as frequently as the preceding one. The answer is simple. Water does not strain the kidneys any more than more help in building a house strains the workmen. The excretion of the kidneys is two-fold—water and certain other materials which are the result of the wear on the tissues. This water is the vehicle in which are carried in solution all the ingredients of waste tissue which the system is trying to get rid of. The flow of water through the kidneys to the bladder simply furnishes a current in which to carry off the dissolved detritus; therefore the drinking of a physiological amount of water cannot strain the kidneys.

"If water will thin my blood when it is too thick, will it not make it too thin if I continue to drink so much?" This question is often asked by patients of plethoric habit and lithæmic tendencies whom I am trying to impress with the

necessity of getting the system thoroughly washed out, and the question seems a logical one. The answer, however, makes it plain. The blood craves a certain percentage of water; that certain percentage it will take up and hold, providing a continual supply is being added, but with the blood pressure and circulation automatically regulated by the mechanism which is called the sympathetic nervous system, and with the ready outlet afforded by the kidneys, all water taken in above the amount required to keep the blood at its normal proportion of fluid and solid is passed on, through and out, does its duty simply by washing the system of its impurities. It is often the case that water given in free quantity to a patient suffering from anæmia so assists the digestion that it will help thicken the blood, while in a person of plethoric habit the action is quite the reverse.

"Will drinking a large amount of water continuously produce catarrh of the bowels or bladder?" This question has been seriously asked by patients, from the fact that a person unaccustomed to drinking the physiological amount of water finds the first effect of drinking such an amount to be the necessity of a frequent evacuation of the bladder, and not infrequently it may also cause looseness of the bowels. But we find by experience as well as by logic that the use of such an amount of water as is a physiological necessity does not produce catarrh of the bladder, but rather helps such troubles by so diluting the urine as to render it less irritating, thus giving nature a chance to cure the trouble. And not infrequently catarrh of the bowels may be due to an insufficient elimination by the kidneys, in which case the bowels attempt to take up work left undone by the kidneys, and the expression of this effort is indicated by the catarrh, which will be relieved by drinking a sufficiently large quantity of water.

"Will not drinking water make me perspire unduly?" Drinking water up to the physiological amount in the case of a person who has not perspired for years, owing to a lack of sufficient water, may temporarily produce excessive perspiration, such perspiration lasting only, like the flushing of the kidneys, until the system has been relieved of the poisons that can be excreted in that way. In other words, free action of the kidneys and skin, following the use of a normal amount of water when the patient has been for a long time deprived of that amount, is only nature's expression of joy at having once received her deserts.

"Will not cold water chill my stomach and thereby cause harm?" The reply to this question is, unduly cold water might; ice-water, for instance; but water at a temperature making it pleasant to drink, say from 45° to 60° F., will not chill the stomach. All illustration from nature is shown in the fact that nearly all our springs are cold, very few hot. Most of the water we drink should be cold; hot water should be used for other purposes than to supply the system with the necessary fluid.

But my patient says: "Water drinking gives me gas on the stomach, and if it does so I should not drink it, should I?" Why not? There is no gas in water. If gas appears in the stomach, or is noticed in the stomach after drinking water, it simply shows that gas was there before, and the water, displacing the gas, causes more or less eructation, and is frequently one of the best methods to relieve the stomach of gas.

"Doctor, if water turns sour on my stomach, I suppose it is a sign that water disagrees with me, isn't it?" Water does not turn sour in any one's stomach. It may bring to the knowledge of the patient the fact that an acid condition exists in the stomach, in the same way that

it brings to him the knowledge of the presence of gas in the stomach, but it will not produce acidity any more than it will produce gas, and if acid is in the stomach it was there before, and instead of making it worse, water will manifestly make it better. The more water we put into vinegar the less acid it is, and the more water we put into the stomach the less concentrated will be the acid, be it fermentation acid or not. Consequently the answer to this question is that it is not a sign that water disagrees with a person, but a sign that something else needs attention, and the water is not contraindicated.

"Will not water, drunk at meals, retard digestion?" In a majority of cases the answer will be, no. It does not retard digestion unless it is drunk in undue quantity, and used as a means of washing the food down, to save the labor of properly masticating it and mixing it with saliva. A moderate quantity of water in most cases aids digestion by increasing the fluidity of the contents of the stomach, and thereby favoring the admixture of the gastric fluid with the food.

"Shall I drink hot or cold water?" The use of hot water is valuable when there is pain or distress in the stomach, and should be then favored. In the case of a delicate, sensitive stomach, when the patient cannot be induced to drink the necessary amount of cold water, it is often easier to get him to take it hot, but for general purposes most of the water drunk should be used cold, or cool, for the tonic effect of cool water on the stomach is greater than that of hot, just as its tonic effect on the skin is greater.

"I should not drink water, should I, unless I am thirsty?" The reply to this question is that the lack of thirst in a grown person is no indication of his need of water or not. A child is always thirsty, and we would be thirsty at proper intervals, so that the appetite would be a guide,

if we did not from preoccupation or some other cause which makes us inattentive to the impulse neglect it, until we find it often absent altogether. When such a condition exists, manifestly thirst is not to be regarded as an indication of the patient's need, for many patients say they are never thirsty.

Several of the questions asked and answered in this paper owe their origin to theories that have come down from our ancestors in medicine, and perhaps from our grandmothers, who were not our ancestors in medicine. The absurdity of the old-time notions about water may be well illustrated by the following extract, on the medical view of the use of water about three centuries ago, taken from *The Hospital*:

"It needed a very bold man to resist the medical testimony of three centuries ago against water-drinking. Few writers can be found to say a good word for it. One or two only are concerned to maintain that 'when begun in early life it may be pretty freely drunk with impunity,' and they quote the curious instance given by Sir Thomas Elyot in his 'Castle of Health,' 1541, of the Cornishmen: 'Many of the poorer sort, which never, or very seldom, drink any other drink, be, notwithstanding, strong of body and like and live well until they be of great age.'

"Thomas Cogan, the medical school-master of Manchester fame, confessed in his 'Haven of Health,' 1589, designed for the use of students, that he knew some who drank cold water at night, or fasting in the morning, without hurt; and Dr. James Hart, writing about fifty years later, could even claim among his acquaintance 'some honorable and worshipful ladies who drink little other drink, and yet enjoy more perfect health than most of them that drink of the strongest.' The phenomenon was undeniable, but the

natural inference was none the less to be resisted.

"Sir Thomas Elyot himself is very certain, in spite of Cornishmen, that 'there be in water causes of divers diseases, as of swelling of the spleen and liver.' He complains oddly also that 'it flitteth and swimmeth,' and concludes that 'to young men, and them that be of hot complexions it doeth less harm, and sometimes it profiteth, but to them that are feeble, old, melancholy, it is not convenient.'

"'Water is not wholesome cool by itself for an Englishman,' was the version of Andrew Borde—monk, physician, bishop, ambassador, and writer on sanitation—as the result of a life's experience. And to quote the 'Englishman's Doctor':

"'Are enemies to health and good digestion,
Both water and small beer, we make no question.'

"But the most formal indictment against water is that of Vennet, who, writing in 1622, ponderously pronounces: 'To dwellers in cold countries, it doth very greatly deject their appetites, destroy the natural heat, and overthrow the strength of the stomach, and consequently, confounding the concoction, is the cause of crudities, fluctuations, and windiness in the body.' "

HOW TO PREVENT TYPHOID FEVER IN RURAL DISTRICTS *

HARVEY B. BASHORE, M. D., West Fairview, Pennsylvania.

Typhoid fever is the plague of the country districts. In a certain locality in Michigan where accurate statistics were kept, it was found that in an area in which the people used well water there were just twenty-six times as many cases in proportion as there were in a city district all of whose inhabitants used a Lake Superior

* Read by title at the Philadelphia meeting of the American Public Health Association.

water. In Pennsylvania I think that the average is fully as high, at least it would reach ten to fifteen times more for the country than for the cities.

There is no longer a question that the prevalence of this rural typhoid arises from the fact that the population depends upon polluted well water, and that the wells are infected from privies which one time or another have held typhoid excreta and infected the surrounding ground water.

Wells might not be so bad were it not for the fact that the ground water infected with typhoid purifies very slowly.

To eliminate this disease, it is plain that we have to eliminate one or the other means of infection, either the well or the privy vaults which have poisoned the waters.

It will be a hard and thankless task to get people to give up their privy vaults and use earth closets, and it will be a matter of many years' teaching before they do it.

On the other hand, changing the water supply is comparatively easy, and meets with more general approval. A good many of the small villages are already working in this direction by attempting to procure a public supply from some neighboring spring, and by this means they hope to meet the difficulty; but a public supply, such as is generally furnished to small towns, very often becomes polluted, and the danger is worse than ever. Then, too, a public supply is comparatively costly.

There is another way, however, to bridge the difficulty successfully and cheaply, and that is by substituting cisterns for the old wells. By this means typhoid fever may be eliminated more quickly and more thoroughly from rural districts than by any other method.

The problem of using cistern water has been carefully studied, and we are able to

tell just exactly the size of the cistern, the amount of collecting service, etc., necessary for any given family, calculated for the known rainfall of the district. For example, if the roof surface contains one thousand square feet and if the rainfall is thirty-seven inches, about twenty thousand gallons will be collectable annually, which at ten gallons a head daily is more than sufficient for the wants of an ordinary family. For a yearly yield of this amount the cistern need not be excessively large, for the rain does not all come down at once. A cistern five feet deep and ten feet in diameter will hold about two thousand gallons. This will probably last more than a month, and before it is exhausted there will likely be more rain to add to the supply, for it is rare that a month passes without some precipitation.

If we rely on the cistern to eliminate typhoid fever, we must pay some attention to its construction, for only on its ability to keep out soil water rests the superiority of the cistern over the well. If carefully made of bricks and thoroughly cemented, it will be proof in most cases against this contamination from the soil. I know personally of such a cistern which was made twenty-five years ago and is still as good as ever.

Cistern water generally has a peculiar flavor, arising from the decomposition of vegetable materials which get into the water from the collecting surface. This may be avoided in a great measure by keeping the cistern clean, and by a "cut-off," so arranged that the first washings from the roof are turned into the street; or if thought necessary the water may be filtered.

In order to filter cistern water, all we have to do is to build a partition in the cistern, with several holes at the bottom, connecting the two sides. Into the one side is placed the filter, consisting simply of three or four feet of coarse sand, or of

layers of gravel, polarite, and sand. Into this side the roof leader empties and into the other dips the pump. By this means cistern water may be made as palatable as any other water, and obtained at much less expense.

That the use of cistern water will prevent typhoid fever in rural districts is not hypothetical, but a fact proved by experience. In a certain county in Pennsylvania, on account of an underlying limestone formation, there is a great inability to get good well water, and as a consequence the greater part of the community uses cisterns. In this region a careful study of the records of the resident physicians has been made, and it was found that there was a marked absence of typhoid fever. One of the towns in this place, well known to the author, will serve as an example for all the rest. This town of twenty-two hundred inhabitants has for many years depended almost exclusively on cistern water, and as a result typhoid fever is practically an unknown disease. In the last twenty years, so the oldest resident physician tells me, there has not occurred one case of typhoid fever among those exclusively using cistern water. In all this time, moreover, there have been very few cases of fever in the whole town, and every one has been traced to the use of well or spring water. The exact record for the last five years is three cases of fever, which the attending physician would not call "true" typhoid. Taking these cases, however, to be typhoid, and counting one death for every twenty sick, it would make the death rate of this community something like one per ten thousand—probably the lowest, at least one of the lowest, typhoid death rates ever attained.

Here, then, is a town where the typhoid sick rate is hardly worth considering and where the death rate is almost *nil*.

If all rural dwellers would give up their

wells and resort to the cistern, the story of this one town would be repeated everywhere, and rural typhoid would become an unknown disease.—*Medical Record*.

REVIEW OF DISEASES FOR DECEMBER. 1897.

(SEVENTY-FIVE COUNTIES REPORTING.)

Eighty-one counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

MEASLES—Beaufort, 12; Catawba, 2; Chatham; Forsyth and Iredell, in all parts; Lincoln, 3; McDowell; Mecklenburg, 3; Mitchell, 100; Pitt; Stanly, 75; Surry, epidemic in middle part; Union; Wake, 8; Warren, 1; Watauga, 10 in the east; Yancey—17 counties.

WHOOPING-COUGH—Beaufort, 7; Hertford, 2; McDowell; Macon, 3; Martin, 15; Mecklenburg, 6; Onslow, 40; Randolph, 5; Sampson; Stanly, 10; Washington—11 counties.

SCARLATINA—Cumberland, 2; Forsyth, in all parts; Guilford, 2; Moore, 2; New Hanover, 4; Person, 1; Richmond, 4, mild; Wake, 1; Warren, 1—9 counties.

DIPHTHERIA—Ashe; Iredell, 1; McDowell, 1; Mecklenburg, 4; Randolph, 5; Wake, 2; Yancey, 3 or 4 in one family, quarantined—7 counties.

TYPHOID FEVER—Beaufort, 2; Bertie, 1; Buncombe, 2; Catawba, 2; Cherokee,

1; Clay, 2; Cleveland, 3; Columbus, 12; Craven; Edgecombe, a few; Gaston; Haywood, 9; Hertford; Iredell; Macon; Mecklenburg; New Hanover, 5; Pender, 2; Person; Pitt; Richmond, 7; Sampson; Stanly, 1; Wake, 1; Wayne, 1—25 counties.

MALARIAL FEVER—Bertie; Chowan; Columbus; Craven; Halifax; Hertford; New Hanover; Onslow; Pasquotank; Person; Washington; Wayne; Wilson—13 counties.

MALARIAL FEVER, HEMORRHAGIC—Bertie, 1; Craven; Hertford, 3; New Hanover, 1; Onslow, 2; Washington, 3; Wayne, 1—7 counties.

INFLUENZA—Alamance; Craven, a few; Duplin; Durham, in nearly all parts; Granville; Greene, in all parts; Halifax; Moore; New Hanover, in all parts; Rockingham; Sampson, in nearly all parts; Vance; Wilkes, in nearly all parts—13 counties.

MUMPS—Macon, a few.

PNEUMONIA—Cleveland; Craven, a few; Gaston, 1; Onslow; Pasquotank; Perquimans; Transylvania; Warren; Washington—9 counties.

VARICELLA—Durham, in nearly all parts; Granville; Mecklenburg, epidemic.

CHOLERA, IN HOGS—Ashe; Chatham; Clay; Jackson; Pasquotank, on one farm.

BLIND STAGGERS (?)—Sampson.

No diseases are reported from Alexander, Bladen, Cabarrus, Caldwell, Carteret,

Davidson, Davie, Franklin, Johnston, Madison, Montgomery, Orange, Rutherford, Swain and Yadkin.

No reports have been received from the Superintendents of Health of Anson, Burke, Nash and Robeson.

Summary of Mortuary Reports for December. 1897 (Twenty-four Towns).

Only those towns from which certified reports are received are included:

	<i>White. Col'd. Total.</i>		
Aggregate population	72,039	54,921	126,960
Aggregate deaths	75	81	156
Representing temporary annual death rate per 1,000	12.5	17.7	14.0
<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever	3	2	5
Malarial fever	1	0	1
Whooping-cough	0	1	1
Pneumonia	6	8	14
Consumption	4	13	17
Brain diseases	8	6	14
Heart diseases	5	2	7
Neurotic diseases	1	0	1
Diarrhoeal diseases	0	3	3
All other diseases	44	42	86
Accident	2	4	6
Suicide	1	0	1
	75	81	156
Deaths under five years	12	20	32
Still-born	10	13	23

Mortuary Report for December, 1897.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1 000.																		TOTAL DEATHS.	
		By Races.	Total.		Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All other Diseases.	Accident. Scalds.	Violence.	By Races.	By Towns. Deaths Under 5 Years.	Still-born.
ASHEVILLE	W.	8,000		16.5		2														11		1	
Dr. M. H. Fletcher.	C.	5,000	13,000	21.6	18.5						2	1					6			9	20	1 5	
Durham	W.	4,000															1				1		
Dr. J. M. Manning.	C.	2,000	6,000																	0			
FAYETTEVILLE	W.	3,500		13.7			1										2				4		
Dr. J. V. McGowan.	C.	2,500	6,000	0.0	6.0								1							0	1		
GOLDSBORO	W.	3,700		3.2										1							5	1	
T. H. Bain, Sec. B. H. C.	C.	2,000		24.0												1	2				12		
GREENSBORO	W.	5,500		13.1							1	1				1				6	12	2	
J. S. Michaux, City Clk.	C.	2,500	8,000	19.2	15.0						1	1	1			1				4	10	2 1	
HENDERSON	W.	2,250		5.3												1					1	1	
Dr. F. R. Harris.	C.	2,000	4,250	0.0	2.1															0	1		
HILLSBORO	W.	400		0.0																0			
Dr. C. D. Jones.	C.	300	700	40.0	17.1											1				1	1	1	
LENOIR	W.	840		0.0																0			
Dr. A. A. Kent.	C.	300	1,100	40.0	10.9						1									1			
MARION	W.	750		0.0																0			
Dr. B. A. Cheek.	C.	250	1,000	0.0	0.0															0			
MONROE	W.	1,830		6.7										1							3		
Dr. J. M. Blair	C.	600	2,400	40.0	15.0											2				2			
OXFORD	W.	1,200		10.0												1					3		
Dr. G. A. Coggeshall.	C.	1,100	2,300	21.8	15.6							1				1				2	1		
RALEIGH	W.	8,000		22.5							2	1	3	1		8				15	24	2 2	
R. P. Sale, San Insp'c.	C.	7,000	15,000	15.4	19.2	1					3	1				4				9	21	1 2	
ROCKINGHAM	W.	1,300		0.0																0	1		
Dr. W. M. Fowlkes.	C.	450	1,750	26.7	6.8						1									1			
ROCKY MOUNT	W.	1,600		0.0																0			
Dr. G. L. Wimberley.	C.	1,000	2,600	0.0	0.0															0			
SALEM	W.	1,100		8.8							1					2				3	5	2	
S. C. Butner, Mayor.	C.	450	4,550	53.3	13.2						1					1				2	1		
SALISBURY	W.	4,000		15.0							1					1				5	11	1	
Dr. John Whitehead.	C.	1,500	5,500	48.0	24.0						2	1				1	2			6	2		
SCOTLAND NECK	W.	775		15.7												1				1	2		
J. A. Perry, Mayor.	C.	125	1,200	28.2	20.0											1							
SOUTHPORT	W.	800		15.0													1			1	2	1	
H. K. Ruark, City Clk.	C.	100	1,200	30.0	20.0						1									1			
TARBORO	W.	1,200		10.0							1					1				2	3		
Dr. L. L. Staton.	C.	1,300	2,500	18.5	14.1											1				1			
WARRENTON	W.	951		0.0																0	0		
Dr. P. J. Macon	C.	795	1,760	0.0	0.0															0			
WASHINGTON	W.	3,000		8.0								1				1				2	7	1	
Dr. D. T. Tayloe.	C.	2,500	5,500	24.0	15.3	1					1	1	1			1				5			
WELDON	W.	700		34.3							1					1				2	4	1	
J. T. Gooch, Mayor.	C.	750	1,150	32.0	33.1																		
WILMINGTON	W.	10,000		19.2								1	1			13	1			16			
Dr. W. D. McMillan.	C.	15,000	25,000	14.1	16.3						1	2		1	1	13				18	34	3	
WILSON	W.	2,500		9.6		1										1				2	1	1	
Dr. N. Anderson.	C.	2,000	4,500	12.0	10.7											1	1						
WINSTON	W.	5,200		2.3							1										11	2	
Dr. John Bynum.	C.	1,800	10,000	25.0	13.2						1	2	1			5				10	4		

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

There were six deaths from consumption, of non-residents, all white.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwicke
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick		Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell		Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moyer.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. I. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire	Rowan	Dr. John Whitehead
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. A. G. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Council.
Henderson	Dr. B. L. Ashworth	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Small-pox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks :

M. D.

The disease has not spread in Wilmington, nor has it in Charlotte, except to two children of the first case there, both of whom having been promptly vaccinated, have it in a modified form and will recover. The last Charlotte case did not originate in the city. Its history is as follows: A negro laborer went from Greenville, S. C., to Neal's camp, twelve miles north of Mooresville, just in the edge of Rowan, seeking employment on the Mocksville and Mooresville extension of the Southern Railway, and arrived there sick on the evening of Sunday, 9th inst. He slept that night in a hut with two others besides coming in contact with others. Next morning he noticed an eruption on his face, and suspecting its significance, and fearing that he would be quarantined, he quickly took to the woods and attempted to make his way to his home in South Carolina. Weakened by the disease, fatigue and privation, he succumbed

on Tuesday about two miles from Charlotte, and hailing two passing bicyclists from his place in the woods, telling them the nature of his trouble, they promptly notified the authorities, and he was taken to the hospital. But we feel very anxious he has spread the infection during his lest wanderings. Those known to have been exposed have been quarantined and everybody possible vaccinated, we are informed by the Superintendent of Health, Dr. Whitehead; but he adds that, owing to a most unreasonable and bitter prejudice felt by many against vaccination, and the dread of being sent to the pest-house, he fears that many who were exposed would conceal the fact. We await developments, therefore, with misgiving, but we are somewhat encouraged by not hearing of any new cases in that district after eleven days, though we realize, of course, that lapse of time does not take us "out of the woods."

What are we to do in this matter of vaccination? How can the vaccination of the people be practically accomplished? Will some of our contemporaries of more experience tell us? We have seen the attitude of hostility assumed by many in the rural districts of Rowan, and it is a matter of record that in Wilmington, our largest city, the attempt to enforce vaccination was a failure. The physicians appointed by the city to do the work were abused and vilified, and actually threatened with personal violence in some instances if they should attempt to carry out their instructions and the effort was finally abandoned. The opposition was chiefly among the negroes, the very class that is in greatest danger from the disease. In Charlotte, we are glad to say, the efforts in this direction was more successful, about fifteen thousand having been vaccinated at last accounts. The acting Mayor of Charlotte, Dr. R. J. Brevard, jailed a recalcitrant—all honor to him!—

and it had, as was to be expected, a most wholesome effect.

There being a difference of opinion among the physicians as to the true nature of the last Charlotte cases, Mayor Springs requested us to ask the Marine Hospital Service for an expert to settle the question. We did so, of course, at once, and we desire to make our acknowledgments to Surgeon-General Wyman for his kind response in ordering Past Assistant Surgeon Wertenbaker, now stationed at Wilmington, to report at Charlotte immediately for the purpose. He did so, and below is his report:

CHARLOTTE, N. C., Feb. 11, 1898.

To His Honor, E. B. Springs, Mayor of Charlotte, N. C.

SIR:—In obedience to telegraph instructions from the Surgeon General, United States Marine Hospital Service, I reported to your representative last evening, February 10, 1898, for the purpose of examining and reporting upon the nature of certain cases of sickness now in the pest house on the outskirts of Charlotte. I have the honor to report as follows:

Accompanied by Drs. Strong and Wilder, I this morning visited the pest house of your city, and found therein nine (9) persons, all colored. Four of these are suffering with smallpox; the other five, having been exposed to the disease, are now detained, awaiting developments, and are employed in nursing the sick. The following named persons are suffering from the disease: Sally Wagner, Oscar Jackson, Frank Jackson and Harvey Perkins. Sally Wagner and Oscar Jackson are recovering, both having had a light attack of the disease.

Frank Jackson, aged four (4) years, is a son of the case that died with smallpox recently. Frank developed the eruption on Wednesday last, and has a very light attack. In the cases of Sally Wagner, Oscar Jackson and Frank Jackson, the disease has been modified by vaccination. Harvey Perkins, aged 57, nativity, North Carolina, developed the eruption last Monday morning at Neal's Camp, twelve miles north of Mooresville, on the Mocksville extension branch of the Southern railroad. He had come from Greenville,

and arrived at the Camp on Sunday evening, and slept with some of the employees, on Sunday night. On awakening Monday morning, he noticed that he was broken out with the eruption. He left the Camp quietly, without mentioning the eruption to any one, and made his way to Charlotte—arriving yesterday afternoon—(February 10, 1898.)

He is now in the fifth day of the eruption, and his case is typical. I have the honor to remain,

Respectfully yours,

C. P. WERTENBAKER,

Passed Assistant Surgeon, U. S. Marine Hospital Service.

SUGGESTIONS.

Referring to the request of your representative, expressed last evening, that I would make any statement, or offer any suggestion that would be of service, that would protect the city from smallpox, and relieve the situation here, I beg to submit the following remarks:

As to the danger of the spread of the infection from these cases of smallpox, now in the pest house, I am of the opinion that there is none, so long as the present methods of quarantine are enforced.

The danger to the city lies in the possibilities of the disease being imported from elsewhere, and finding unprotected persons here, may claim new victims and establish new foci of infection.

I beg to state, that from what I have learned of the method of your health authorities, they have been well conceived, and well executed, as the circumstances would permit.

As to the methods of prevention of smallpox, there are only two practicable. One is to prevent its introduction, and the other is to give it no material to feed on. With the number of cases of smallpox at present scattered through the Southern States, it is not practicable to prevent its coming into this city. So the only other alternative is to be prepared, leave no person in the city who is unprotected to become a victim. I am informed that there has been some opposition on the part of some of your citizens to the ordinance requiring every person to be vaccinated, or show that they are otherwise protected against smallpox. As far as I can learn, this opposition is based chiefly on the ground that in some instances the vaccinated person has been

temporarily disabled, due to inflammation of the arm, and has been unable to attend to his business. I believe that, as a general rule, excessive inflammation following vaccination, is chiefly due to some injury or irritant to the vaccination wound, rather than to the virus, and if the wound is properly protected but little, if any, inconvenience will follow vaccination.

On the other hand, it would seem to be a duty that every individual owes to himself, his family, friends, and the community at large, to protect himself from smallpox, and the possibility of becoming a focus of infection to the whole city.

That it is possible to be brought in contact with smallpox at any time and place, is evidenced by the case of Perkins, who wandered to this city yesterday afternoon. As it happened, he was unable to come into the city, so fell by the wayside and made known his disease.

Had he been stronger, he would have come into the city; he might have stood next to any one in a crowd and infected him, he might have come in contact with one of your servants, and this way sent the disease into your own homes. I thoroughly believe in vaccination, and believe that it is the chief available means of protection from smallpox. I am sure that the people of Charlotte will appreciate the efforts of their health officers to protect them from smallpox, and that they will voluntarily aid them in this protection of every hearth and home.

NATIONAL QUARANTINE AGAIN.

The Quarantine Convention of the South Atlantic and Gulf States, which met at Mobile on the 9th instant, after a session of three days, which included many learned papers and excellent speeches, we are informed, finally expressed its conclusions in the following resolutions:

"*Resolved*, That it is the sense of this Convention that Congress be requested to provide for a Department of Public Health as soon as possible.

"2. That it is the sense of this Convention that Congress should enact laws to provide for an efficient maritime quarantine to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one

or more of them undue commercial advantage over the others and to be enforced by the several State and municipal quarantine or health boards, if they will undertake to do so, leaving also to the States the power to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

"3. That Congress should aid the several States in establishing and maintaining uniform, reasonable and efficient quarantine laws for affecting but not regulating inter-state commerce, leaving to each State adequate power to protect, as it shall deem best, the lives and health of its people.

"4. That Congress shall leave exclusively to the States the regulation of their purely internal commerce and the provision of such quarantine or sanitary laws and regulations as they deem advisable to that end; that in the framing of quarantine laws and regulations, and in their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council."

The reporter of the *Atlanta Constitution*, commenting on this action, says:

"The adoption of this particular series of resolutions was more of an accident than anything else and the verbiage of the several recommendations mean nothing. The direct line between State and Federal control of quarantine was drawn and the adoption of the Clarke substitute was due only to the fact that it was the first expression of the majority opinion that reached a vote. It shows simply that the Convention is made up of delegates representing every possible interest affected by quarantine regulations who want to have the assistance of the Federal Government in fighting the next epidemic which menaces them."

So it seems that the South Atlantic and Gulf States, where the strongest opposition to the suggestion was to be found, are in favor of a quarantine administered by the Federal Government. It is settled therefore that the country demands a national quarantine system.

Now the practical question before us is,

by whom shall it be administered—by the Marine Hospital Service, a compact, thoroughly drilled and disciplined corps, already seasoned by several campaigns, or by a national department of public health, which, in the nature of things, would be under the baleful influence of politics and composed in too many instances of inexperienced persons, to say the least? In a word, shall we fight the enemy with the regular army or with the militia? or, as it is proposed, for the "Department" to utilize the Marine Hospital Service, shall we put a militia general in command of the regular troops? It seems to us that there can be only one answer to the question for any fair-minded man, for anyone uninfluenced by prejudice or considerations of self-interest.

The *Medical Record*, which has not always been particularly favorable, according to our recollection, to the Marine Hospital Service, prints in its issue of the 12th instant the following strong editorial on the subject:

NATIONAL QUARANTINE AND THE MARINE HOSPITAL SERVICE.

The discussion concerning the advisability of a national health law has culminated in a consensus of opinion on the part of the general public, of the health authorities, and of the medical profession, that the time has come for an ultimate settlement of the questions at issue. To this end several bills are now before Congress, advocating governmental control of quarantine and the consistent adjustment of State rights in preventing the spread of disease from one commonwealth to another. The experiences of widespread epidemics, notably that of yellow fever last summer, and the inability of the different health boards adequately to meet the then existing emergencies, have proven the urgent necessity for more stringently protective regulations than at present exist. The fundamental difficulty has been the apparent impossibility of reconciling merely local differences with the general good. Each State, having a sanitary code of its own and being naturally

jealous of its legal rights, has fought against a proper understanding of mutual interests and the consistency of adopting proper means to desirable ends. It is perfectly obvious that, in order to harmonize such more or less radical disputes of authority, there should be created some centralized power in the general government, which should control every part of the widest territory or the longest stretch of coast, and compel each State to do its part in the realization of a perfected system of common protection.

To accomplish such a purpose, very many efforts have been made during years past by sanitary and medical organizations, but thus far there has been no reasonable agreement on the fundamental principles and on the practicable and consistent management of necessary details for effective and comprehensive work. The medical profession, with a laudable effort to gain proper recognition in such a movement, has been over-ambitious in claiming too much for itself at the start. While it would be eminently desirable that a distinct department of public health should be created, having a cabinet officer at its head, it is quite evident, considering the state of public opinion at present, that there is no appreciation of the necessity of such a radical and far-reaching measure as yet; and it is also quite clear that the profession must grow up to the situation rather than force it. This disposition on the part of the framers of many of the bills is the real stumbling-block to all effective legislation on the subject. It has been so in the past, and it is so in the present. It is the old story—when we ask for too much we are likely to get nothing. Every one who has studied the attempts at legislation in the direction of national quarantine must have been impressed with their complexity, impracticability, and cumbersomeness.

There is just now not so much a necessity for educating the public in sanitary matters as for perfecting suitable police regulations for threatening epidemics. Thus it would naturally appear to be reasonable to elaborate, strengthen, and amplify what we may already have in that line, rather than to aim at some new, untried, and obviously unwarrantable measures. From such a point of view the bill of Senator Caffery, "granting additional quarantine powers and imposing additional duties upon the Marine Hospital

Service," deserves the support of every one who may hope for a logical settlement of the great question at issue. This bill has for its purpose such a development of the Marine Hospital plant as will make it possible for the general government efficiently to control all maritime and inland quarantine, and is framed on the practical basis of aiding and advising the local authorities and not interfering with them, unless in cases of emergency, or when large districts of country are affected and when a general, impartial and uniform system of protection is demanded. The Secretary of the Treasury naturally remains as the legitimate head of the department. Much as it would compliment the medical profession to have a physician in such position as a member of the Cabinet, the proposed measure is the next best solution of a question concerning which there are many pros and cons. The Secretary has already supreme control of maritime customs, and can, on sufficient grounds, refuse the entry of any vessel bound for our ports. When to such power that of enforcing quarantine is added, it is easy to conclude that both functions can work together harmoniously and consistently. Then, again, there can be no question, in this instance, regarding the constitutionality of so-called invasion of State rights, as Congress has the right to regulate commerce and can interfere with anything that pertains to it.

One very forcible argument in favor of the bill is the fact that the Marine Hospital Service, having done so much in arresting and preventing epidemics, is fully competent to exercise increased powers in the line of work with which it is already perfectly familiar. With such great interests at stake as the health of the entire nation, there will be no possible temptation to make distinctions in favor of one or other district, but all can come under a uniform regulation, "as far as climatic conditions will justify."

The main opposition to national quarantine comes quite naturally from local authorities, which are jealous of the privileges of revenue and of political patronage. This is evidenced by offers on the part of several States to purchase the present quarantine plants of the government and manage them as independent establishments. The pecuniary measures which comprise the levying of arbitrary and excessive fees on commerce, and which are

the main ones considered by the different State quarantines, are to the last degree oppressive, burdensome, invidious, and unnecessary. By a new order of things there will be no call for special fees, and all the ports of entry will be on an equal basis as regards quarantine regulation. The advantages of the latter system are already proven in those localities where only national inspection prevails, by the fact that increased trade is naturally attracted to such favored ports to the exclusion of neighboring ones not so favored. Thus it will be seen that millions of dollars can be saved to commerce which are now demanded on the purely technical ground of State rights to collect special fees.

It is useless, however, to multiply arguments in favor of national quarantine. The real question that concerns us now has reference to the best and readiest means to the desirable and imperative end. The best answers to objections urged against all bills heretofore presented are very effectively, consistently, and practically given in the admirable, far-reaching, comprehensive, and just provisions of the Caffery bill. The Marine Hospital Service eminently deserves every opportunity for increased usefulness and good work. Even with its limited resources it has made an admirable and unimpeachable record. The profession and the public should be ready with their endorsement, at the time when such is so much needed, to make all the really necessary quarantine reforms within the reach of ready realization.

In the *Literary Digest* of the 5th inst. we note under the heading "Is Quarantine of any Use?" this bright and interesting extract from the London *Hospital*, setting forth the well known attitude of Great Britain on the subject of quarantine in general:

"It does not surprise us that an ignorant population should stand on guard at railway stations with loaded firearms, and should forbid trains to stop or passengers to alight, but it does surprise us to find a medical contemporary even appearing to admit that, 'the paper plausibilities of quarantine' are able to confer some kind of degree of additional security upon States in the vicinity of those which may be visited by a yellow-fever epidemic.

"The belief that any such security can be afforded in the manner indicated is one which could hardly fail to spring up and flourish during the darkness of the Middle Ages. The first proposals for quarantine date from the middle of the fourteenth century, and originated in the city of Milan, as a precaution against the Black Death. The example thus set was followed in Venice, where the first *lazaretto* was established in 1423, the disease then to be kept at bay being bubonic plague. Two centuries later the system was almost universal and had reached its full development, inasmuch that very elaborate regulations were formed and enforced in this country with reference to the plague, which appeared so early as in 1636, and which committed such terrible ravages in London and in some country districts, as at Eyam, between 1663 and 1666. These endeavors to exclude plague were as effectual, in the words of Sir John Simon, 'as if their intention had been to bar out the east wind or the new moon'; but, notwithstanding this, the epidemic of cholera which prevailed in Europe in 1831 found not only the populace, but even the sanitary authorities of this country, prepared to trust in quarantine as their supreme hope. As the Government could only control the regular channels of trade or passage, all persons of influence resident on the coast, and particularly in retired villages, were urged to impress upon their neighbors the dangers of intercourse with smugglers and other evaders of quarantine. It might have been thought that this very injunction would of itself have been sufficient to prove to those who issued it the utter futility of the whole proceeding. The Government was able to interfere just so much as to cause the maximum of inconvenience and loss to healthy people, and the maximum of injury to trade; and, when this was done, they were unable to touch so much as the fringe of the innumerable points of leakage, which even the best organized system of quarantine must leave wholly unprovided for. Notwithstanding the quarantine, the disease was not only introduced, but it spread with terrible rapidity, and produced a mortality of many thousands, the precise amount of which it would not be impossible to ascertain. Taught by experience, the General Board of Health, in 1849 and 1852, strenuously pointed out that quaran-

tine could not give any but a false security for the purpose it pretended to accomplish; and, adducing illustrations of its futility and oppressiveness as commonly administered, boldly proposed, as a practical conclusion, that this country should entirely set aside its existing quarantine establishments, and should rely exclusively upon the protection it could derive from a system of local sanitary improvements. Our present method is to admit disease freely, but to be on the watch for it when it comes. If plague or yellow-fever were brought to any English port, the actual sick would be landed and placed in a proper hospital for the reception of infectious cases; the sound would be permitted to proceed to their several destinations, the sanitary authorities of which would be instructed to keep them under observation until all danger was past, and to send them to hospital if the disease should show itself in them; and the ship and its cargo would be subjected to disinfection. When we had quarantine, plague and cholera were not only introduced, but destroyed their thousands. During the last European epidemic cholera was introduced into many ports, and it fizzled out as harmlessly as a lighted match on a stone floor."

We do not quote this for the purpose of endorsing it as a whole, but only in part. Whatever may be the experience of Great Britain we are thoroughly satisfied that maritime quarantine is necessary to the protection of the United States, which have perennial yellow fever right at their doors. But internal quarantine is another matter. We do not believe that in the present state of public opinion on the subject of sanitary regulations, with our generally crude and imperfect machinery, moving feebly and irregularly for want of power to drive it—money—to enforce them, that it can possibly be made effective. So that it is of the last importance with us to prevent the diseases in question from ever gaining a foothold on our shores. How can that best be done? By dividing the work between the General Government and the States. Let us suppose, for example, that the State of Ala-

bama and the city of Mobile should leave quarantine to the United States authorities and spend all the effort and money now divided between quarantine and local sanitation on the latter, and put the city and other exposed points in such shape that yellow fever, if introduced, would "fizzle out as harmlessly as a lighted match on a stone floor," would not they both be far safer than they are now? Certainly they would.

Not to weary the patient reader further, it seems to us almost a self-evident proposition that the practical and sensible solution of this matter is to turn over to the General Government absolutely and entirely maritime quarantine under the administration of the Marine Hospital Service, and let us, the States and municipalities, devote all our energies and what little money we can get to local and internal sanitation.

REVIEW OF DISEASES FOR JANUARY, 1898.

(SEVENTY-FIVE COUNTIES REPORTING.)

Seventy-nine counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of January the following diseases have been reported from the counties named:

MEASLES—Ashe, 2; Beaufort, 30; Bladen, a few; Buncombe; Burke, 8; Cabarrus, 2; Caldwell, 50; Chatham, Davidson, 200; Forsyth, in all parts; Guilford; Halifax, 7; Iredell, epidemic in all parts;

McDowell; Mitchell, epidemic in all parts; Northampton; Orange, 3; Pitt; Polk, 2; Rockingham, in all parts; Rowan, 4; Sampson, a few; Stokes, in all parts; Surry, epidemic; Union, 15; Warren; Watauga, in all parts; Wilson, 5; Yadkin, 12—28 counties.

MUMPS—Cabarrus; Clay; McDowell.

WHOOPIING-COUGH—Alamance, a few; Ashe, 4; Cabarrus, 3; Davidson, 30; Edgecombe, 3; Forsyth, in all parts; Mecklenburg, 3; Onslow, 30; Perquimans, 2; Randolph, 100; Rockingham, in all parts; Warren—11 counties.

SCARLATINA—Buncombe, 1; Edgecombe, 3; Forsyth, in all parts; Greene, 2; Guilford, 2; New Hanover, 6; Rowan, 1; Union, 1—7 counties.

DIPHTHERIA—Ashe, 1; Cabarrus, 2; Guilford, 1; Rowan, 1; Surry, 2.

TYPHOID FEVER—Beaufort, 1; Buncombe, 1; Catawba, 2; Columbus, 9; Edgecombe, 1; Halifax, 3; Haywood, 5; Hertford, 3; McDowell, 1; Macon, 2; Madison, 6; Mecklenburg, 4; Montgomery, 1; Onslow, 1; Perquimans, 1; Pitt, a few; Rowan, 2; Sampson, a few; Stokes, 2; Transylvania, 1; Union, 1; Watauga, 1—22 counties.

MALARIAL FEVER—Columbus; Jackson, along a creek filled with decayed timber; New Hanover; Orange; Person; Sampson.

MALARIAL FEVER, HEMORRHAGIC—Hertford, 2; Onslow, 2.

SMALLPOX—Mecklenburg, 2; New Hanover, 2.

VARICELLA—Buncombe; Cabarrus; Durham; Gaston; Sampson; Transylvania.

INFLUENZA—Alamance; Ashe, in all parts; Greene, Macon; Montgomery; New

Hanover; Northampton; Robeson; Sampson; Union; Vance—11 counties.

PNEUMONIA—Alamance; Burke; Cleveland, Duplin; Franklin; Gaston; Guilford; Madison; Onslow; Orange; Pasquotank; Perquimans; Person; Rockingham; Vance—15 counties.

CHOLERA IN HOGS—Swain; Pasquotank.

DISTEMPER IN HORSES—Clay; Transylvania.

Summary of Mortuary Reports for January, 1896 (Twenty-three Towns).

Only those towns from which certified reports are received are included:

	<i>White. Col'd. Total.</i>		
Aggregate population	71,639	55,021	126,660
Aggregate deaths ..	69	93	162
Representing temporary annual death rate per 1,000	11.6	20.3	15.3
<i>Causes of Death.</i>	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Typhoid fever ..	3	2	5
Whooping-cough ..	0	1	1
Measles	0	1	1
Pneumonia ..	7	9	16
Consumption ..	6	14	20
Brain diseases ..	4	3	7
Heart diseases ..	5	7	12
Neurotic diseases ..	5	4	9
Diarrhœal diseases ..	4	1	5
All other diseases ..	32	50	82
Accident ..	3	1	4
	69	93	162
Deaths under five years ..	13	22	35
Still-born.....	12	12	24

Mortuary Report for January, 1898.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1,000.															TOTAL DEATHS.							
		By Races.	Total.		By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Deaths Under 5 Years.	Still-born.
ASHEVILLE	W.	8,000	13,000	24.0	27.7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	14	30	4	4
Dr. M. H. Fletcher.	C.	5,000		33.6		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	2	6	3	1
Durham	W.	4,000	6,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. J. M. Manning.	C.	2,000		.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FAYETTEVILLE	W.	4,000	6,500	9.0	7.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. J. V. McGougan.	C.	2,500		1.8		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
GOLDSBORO	W.	3,700	5,700	6.5	10.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T. H. Bain, Sec. B. H.	C.	2,000		18.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
GREENSBORO	W.	5,500	8,000	6.5	13.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
J. S. Michaux, City Clk.	C.	2,500		28.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
HENDERSON	W.	2,250	4,250	0.0	5.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. F. R. Harris.	C.	2,000		12.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
HILLSBORO	W.	400	700	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. C. D. Jones.	C.	300		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LENOIR	W.	800	1,100	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. A. A. Kent.	C.	300		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MARION	W.	750	1,000	16.0	24.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. B. A. Cheek.	C.	250		48.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MONROE	W.	1,800	2,400	6.7	10.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. J. M. Blair.	C.	600		20.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
OXFORD	W.	1,100	2,200	0.0	5.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. G. A. Coggeshall.	C.	1,100		10.9		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
RALEIGH	W.	8,000	15,000	3.0	12.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T. F. Sale, Clerk B. H.	C.	7,000		21.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
ROCKINGHAM	W.	1,300	1,750	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. W. M. Fowlkes.	C.	450		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
ROCKY MOUNT	W.	1,600	2,600	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. G. L. Wimberley.	C.	1,000		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SALEM	W.	4,100	4,550	8.8	7.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
S. C. Butner, Mayor.	C.	450		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SALISBURY	W.	4,000	6,000	30.0	26.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. John Whitehead.	C.	2,000		18.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SCOTLAND NECK	W.	775	1,200	30.9	10.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
J. A. Perry, Mayor.	C.	425		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TARBORO	W.	1,200	2,500	20.0	9.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. L. L. Staton.	C.	1,300		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WARRENTON	W.	964	1,700	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. P. J. Macon	C.	796		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WASHINGTON	W.	3,000	5,500	16.0	26.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. D. T. Tayloe.	C.	2,500		3.84		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WELDON	W.	700	1,450	34.3	16.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
J. T. Gooch, Mayor.	C.	750		0.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WILMINGTON	W.	10,000	25,000	9.6	16.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. W. D. McMillan.	C.	15,000		21.6		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WILSON	W.	2,500	4,500	14.1	10.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. N. Anderson.	C.	2,000		6.0		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WINSTON	W.	5,200	10,000	16.1	21.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. John Bynum.	C.	4,800		27.5		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, there were six deaths from consumption among non-residents.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick		Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell		Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moyer.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGowan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. A. G. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Councill.
Henderson	Dr. B. L. Ashworth.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough _____	Typhoid Fever _____
Measles _____	Typhus Fever _____
Diphtheria _____	Yellow Fever _____
Scarlet Fever _____	Cholera _____
Pernicious Malarial Fever _____	Small-pox _____
Hemorrhagic Malarial Fever _____	Cerebro-spinal Meningitis _____

What have been the prevailing diseases in your practice?

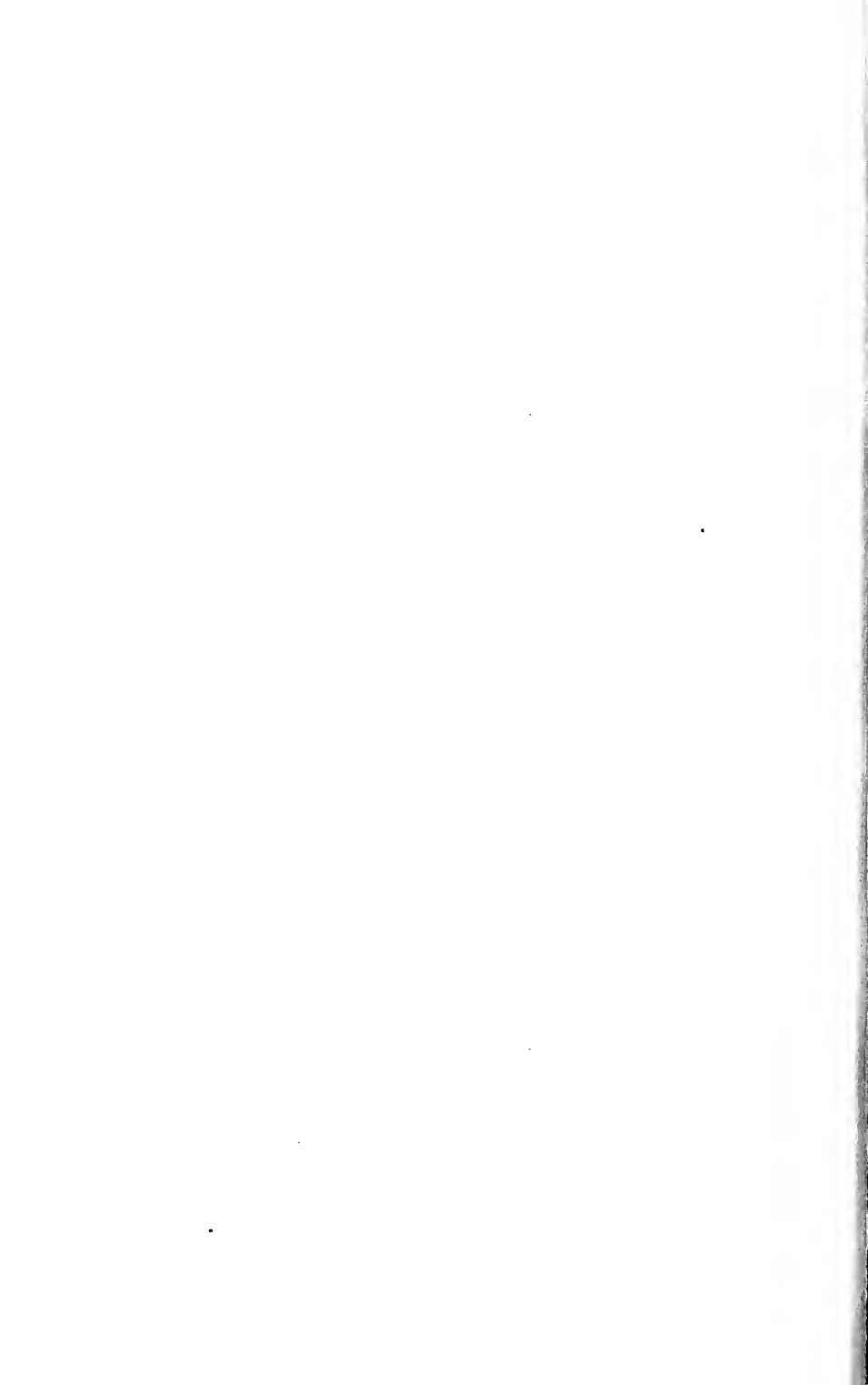
Has any epidemic occurred among domestic animals? If so, what?

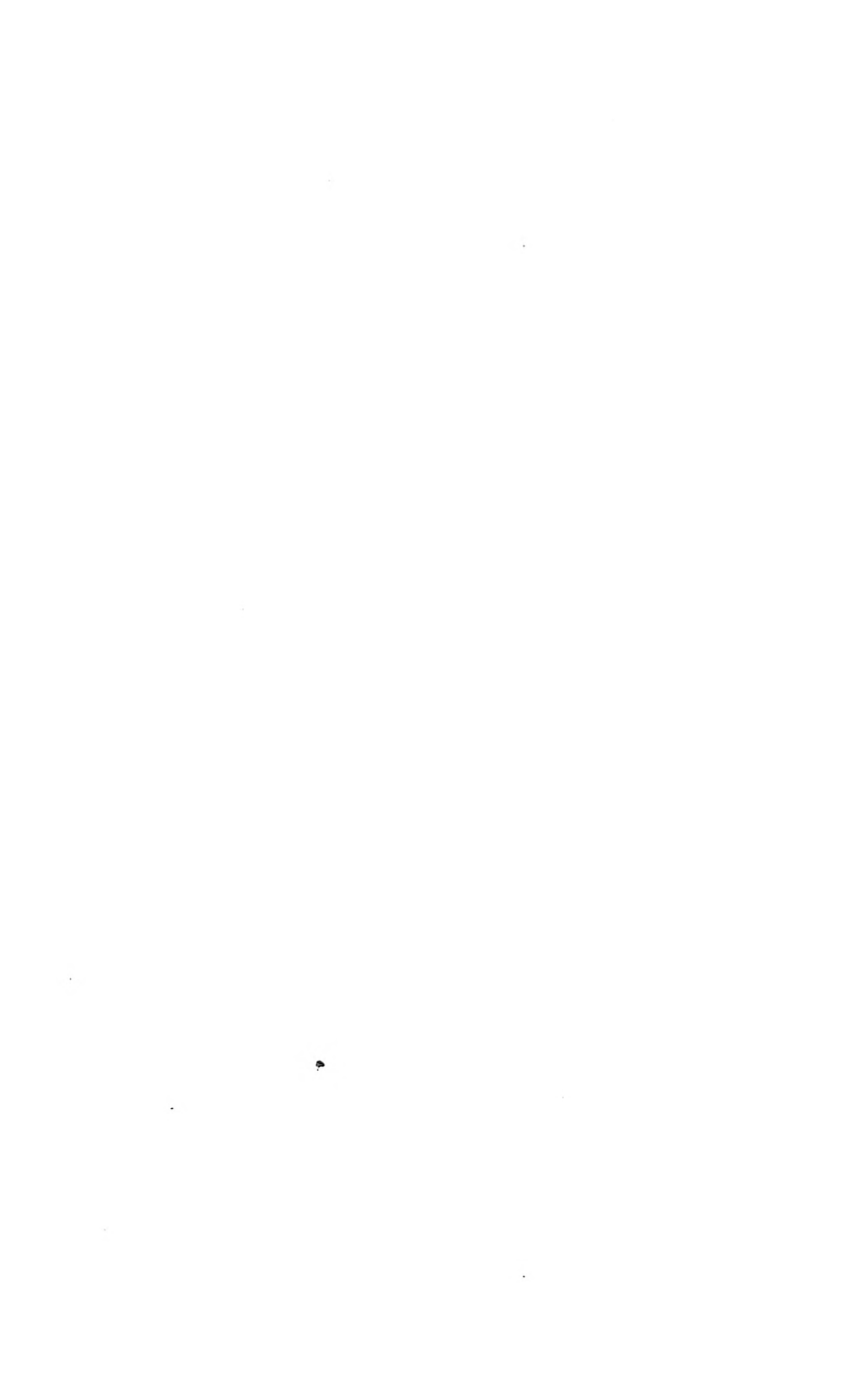
What is the sanitary condition of your section, public and private?

General Remarks :

_____ M. D.









BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
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 JOHN WHITEHEAD, M. D., Salisbury.

C. J. O'HAGAN, M. D., Greenville.
 J. D. SPICER, M. D., Goldsboro.
 J. L. NICHOLSON, M. D., Richlands.
 A. W. SHAFFER, SAN ENG, Raleigh.
 RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XII.

APRIL, 1898.

NO. 12.

ELECTION OF COUNTY SUPERINTENDENTS OF HEALTH.

Under the law as amended by the last Legislature, County Superintendents of Health are to be elected annually on the first Monday in May. We sincerely hope that the several boards of County Commissioners will elect the best man available to this responsible office, and we especially hope that those few boards which failed to elect a year ago will not overlook it again. The law is mandatory on the subject and allows the board no discretion in the matter, and a failure to elect is a plain violation of the oath of office.

SMALLPOX IN NORTH CAROLINA.

On the 30th of March we received a telegram from the Superintendent of Health of Rowan county announcing "a probable case of smallpox" at Salisbury. A subsequent report stated that it was genuine and that the patient would recover. The person affected was a colored postal clerk on the run between Salisbury and Knoxville. The source of contagion was easily traced to a case of smallpox

which occurred and remained in the clerk's Knoxville boarding-house. Dr. Whitehead, the superintendent, promptly took the necessary preventive measures—how thoroughly and successfully is attested by the fact that up to this present writing (three weeks) no new case has occurred.

On the 14th inst. (April), Dr. Fletcher, the municipal health officer of Asheville, reported a case of smallpox in a negro ten days from Jacksonville, Fla. As the case occurred in a negro restaurant we are anxious lest the disease spread, notwithstanding the precautions taken by the health officer.

We regret to learn that a deep prejudice against vaccination crops up every now and then, chiefly among the ignorant—the very element of the population which, owing to the over-crowding and other unsanitary conditions usually co-existent with ignorance, is in peculiar need of the protection afforded by vaccination. The question is how to overcome this prejudice. We have more than once asked our readers for suggestions as to the best practical method of getting the people vaccinated, but not one has responded. It

is easy to understand why it is a problem extremely difficult of a practical solution. Fortunately the feeling against vaccination is sporadic, and we shall console ourselves with the hope that as time passes and knowledge spreads this prejudice will disappear.

Since the above was sent to the printer we have received the following, under date of April 19th, from Dr. Fletcher: "We have the second case of smallpox, imported from Spartanburg, S. C. She ran away from Spartanburg to prevent being taken to the pest-house. Was broken out when she came to Asheville. Was in her own house from Monday night till Friday morning before she was discovered, and a number of people went to see her. Both patients (negroes) are properly quarantined in a pest-house which we established with difficulty—met with armed resistance. Judge Hoke refused to enjoin our Board of Health till we had a hearing. Long before the day set for a hearing came I had my house built (a comfortable two-room house) and my patients in it. For fear of having to pay a big bill of costs the opposition withdrew the application for injunction. We are vaccinating every one as fast as possible; are meeting with some opposition. We have a compulsory vaccination ordinance and mean to fight it out along these lines with tact and discretion."

It is evident that the Health Officer of Asheville is made of the right kind of timber.

THE HOME OF CONSUMPTION.

We print below an extremely interesting communication bearing upon the production of consumption. It indicates in the first place that consumption is essentially an *indoor disease*. There is great probability that the germ which causes consumption is quickly destroyed when

freely exposed to light and air. Indeed, this is not a matter of conjecture, but has been demonstrated time and again. And while the practice of expectorating, or spitting, on the streets is to be deprecated—whether by consumptives or other persons—the great danger comes from such material being cast into dark, unventilated rooms, where the germs may live for an unknown time—probably for years. It will be noted that the house referred to below, in which fifteen persons probably, and thirteen certainly, died from consumption or tuberculosis. "is very damp and the cellar in bad condition," and furthermore it is *surrounded by dense foliage*.

It has long been known that dampness is a factor in the production of consumption, probably acting as a *pre-disposing* cause. It has been shown for a number of towns that subsurface drainage and consequent drying of the soil has always lowered the death rate from consumption where a wet soil had been the condition theretofore. The dense foliage spoken of would cut off both air and light. Such a house, becoming infected, would remain a center of infection for a long time.

The most satisfactory part of Dr. Gaston's statement is his reference to public opinion regarding this house. It is safe to say that no other family will move into it. The question may be referred to the court to determine the power of the Board of Health to order its destruction.

What is most needed is that public opinion throughout the land shall be brought to the level of that of the people of Mineral Ridge. Not that it is necessary that houses in which people with consumption have lived or died need be destroyed, for such houses can be made perfectly safe by modern methods of disinfection. And there seems no escape from the conclusion that cases of consumption should be reported to the health authori-

ties, in order that this may be done. Following is the communication from Dr. Gaston:

MINERAL RIDGE, O., March 29, 1898.

Dr. C. O. Probst, Secretary State
Board of Health, Columbus, Ohio:

DEAR SIR—Relative to the house in this village, mentioned some time since, which has sheltered so many tubercular victims, I enclose you a history of the same as nearly correct as I could obtain it from various sources. I am informed that it was thoroughly disinfected about one year ago; that the building is very damp and cellar in bad condition; that in no way will other residents of the town be satisfied until it is fired. The mother refuses to give up the house, although urged to do so by the remaining children. The local Board has discussed this matter, and now asks the State Board to take such action as they deem best in the matter. The residents of this place look upon the home with horror, and if the family were to move out, I have no doubt that the building would go up in flames inside of twenty-four hours, and not a hand would be turned to save it.

THE HISTORY OF A HOME.

This house was constructed about 1830, and was occupied by a family of the name of F. It is related that a young man who lived with the family was "always ailing and in delicate health," but the only death was that of a baby with bowel trouble. They resided in the premises until about 1846, when the house was occupied by a family named S. They were an unusually strong and healthy family when they first came to this place, with no previous tubercular history. The first one connected with this family to pass away was a lady boarder, but information does not reveal the cause of her death. It was quickly followed, however, by the death of two sons, two daughters, father and mother, from tuberculosis, leaving only one son, who had previously gone to Illinois on account of his health, and who still survives. From 1879 until now the house has been held by the present occupants. There is no history whatever of consumption in the family prior to their coming to this house. The daughter who died recently was born here. Her death was the seventh in the family in as many years from pulmonary tuberculosis. A

sister, two brothers and a mother survive, but the characteristic traces of the disease are plainly visible in the faces of one brother and the surviving sister. The building is a story and a half high, and is surrounded by dense foliage.

Yours truly,

JAS. E. GASTON, M. D.

—*Ohio Sanitary Bulletin.*

We take much pleasure in printing the above most impressive statement of facts, for it is on the lines indicated by our friend, Dr. Probst, viz., abundance of fresh air and sunlight, and the thorough disinfection of infected houses, that the ravages of "the great white plague" can be most effectively curtailed. As "The Best Method of Preventing Tuberculosis" has been selected by the Leader of Debate, Dr. Burroughs, of Asheville, for discussion at the approaching meeting of the State Medical Society, we will reserve what we have further to say on this—literally from the sanitarian's point of view—most important subject for our next issue. We desire, however, to call particular attention to the next article as showing how easily, simply and cheaply the disinfection can be accomplished.

FORMALDEHYDE DISINFECTION AGAIN.

During the month tests have been made of still another, and the latest, apparatus devised for formaldehyde disinfection. This consists, substantially, of a copper receiver of about half a gallon capacity, from the bottom of which a small pipe leads to a coil heated by a kerosene lamp. The agent is the usual 40 per cent. formaldehyde solution (formalin), which is slowly admitted to the coil, where it is volatilized by the kerosene flame and the resulting gases are blown through a rubber tube into the room through the key-hole of a door. It is another modification of the Trillat autoclave, but possesses some advantages. It is easily handled,

free from danger of explosion and is operated entirely outside the room to be disinfected.

Its chief drawback is that which has caused the abandonment of other "generators" of this type, to-wit, that when the solution passes into the red-hot coil the water is quickly boiled off, the solution becomes concentrated and paraformaldehyde is produced—consequently, a considerable quantity of the available formic aldehyd is blown into the room in the polymerized state. A piece of paper placed at the foot of the door through which the gases were being blown gathered a considerable quantity of paraform which had dripped from the end of the tube in the keyhole.

In the experiments, which were conducted under the supervision of the agent for the apparatus, six ounces (187.5 cc.) of the formalin were used for every 1,000 cubic feet of space, and the rooms were kept closed five hours. Agar streak cultures of the diphtheria bacillus and of the *B. prodigiosus* were exposed in the rooms in tubes, open and plugged, covered and uncovered, and at different heights. In closing his report, which is accompanied by a detailed table, Dr. Gehrmann says: "We may, in general, say that the freely exposed specimens were killed. The germicidal effect was, however, more marked in specimens nearest the floor. Those which were covered with one or more folds of a sheet, or placed under pillows, or in plugged tubes, were not always killed.

"We were not able, in the five hours' exposure, to obtain any greater efficiency than with other methods, of vaporizing formaldehyde solution under pressure, or of producing formaldehyde gas by the oxidation of methyl alcohol."

Fully as good, if not better, results have been obtained in a number of disinfections during the month, made person-

ally by Dr. C. W. Behm, Medical Officer in charge of the Disinfecting Corps. In these disinfections formalin was also used, but without the use of any apparatus. Ordinary bed sheets were employed to secure an adequate evaporating surface, and these, suspended in the room, were simply sprayed with the 40 per cent. solution through a common watering-pot rose-head. A sheet of the usual size and quality will carry from 150 to 180 cc. of the solution without dripping, and this quantity has been found sufficient for the efficient disinfection of 1,000 cubic feet of space. Of course, the sheets may be multiplied to any necessary number.

Cultures, both moist and dry, were exposed for five hours in these experiments, some in sealed envelopes and others wrapped in three thicknesses of sheets or folded inside of woolen blankets. Of the former none showed growth after 72 hours' incubation, while the growth was but slight in those wrapped in the blankets. Surface disinfection was thorough, while a much greater degree of penetration was shown in these experiments than that secured by any other method.

The evolution of the gas from the sprinkled sheets is exceedingly rapid—so much so that it behooves the operator to vacate the room within a very few seconds; while, after starting the ordinary generator, he may remain ten minutes or more without serious inconvenience. When the room is opened after five hours the density of the gas is still so great as to preclude respiration until after doors and windows have been opened some little time. On the other hand, the air is respirable within a very few minutes after the sheet has been removed, and there is no lingering smell of formaldehyde for days after, as is the case where the gas is evolved by the action of heat. This is due to the fact that a minimum of paraform is produced in the evaporation of

the solution in this manner at the ordinary temperature, and this is retained in the meshes of the fabric, instead of being precipitated on surfaces, to be slowly converted into the gaseous form through several days.

If further experiments, which are now being prosecuted by the Department, shall confirm the results thus far obtained, the problem of practical domestic disinfection by formaldehyde would seem to be in a fair way to be solved.—*March Report Department of Health City of Chicago.*

WATER.

BY H. C. WOOD, M. D., PHILADELPHIA.

Many European physicians believe that the most active cause of gastro-intestinal disturbance in America is the habitual use of ice water, and there can be no doubt that flooding the stomach with large quantities of ice water during eating has a tendency, by lowering temporarily the temperature of the viscus, as well as by dimming the gastric juice, to cause disturbances of digestion, which, on repetition, may result in the production of gastric catarrh. On the other hand, the habitual taking of large amounts of water is very advantageous for all gouty individuals, and indeed for all persons who eat more than the needs of the system require, in which latter class is included practically the whole of the American people.

It would seem *a priori*, probable, that in its relations with water the human system obeys to a greater or less extent the ordinary physical and chemical laws. What is taken into the body must get out of the body, sooner or later; and the discharge of large quantities of water necessarily increases the flow of secretion. The old researches of Roux and of Boecker indicated that the increase of the amount of urine which follows the water drinking is sometimes, but not always, accompanied

by an increase in the output of solids from the kidneys. The cause of the differences of effects has been shown by Meyer to depend upon the condition of the body; the excess of water in the system appears to have very little influence upon tissue disintegration, but to be powerful in dissolving and carrying off—in other words, in washing out—all excrementitious materials, whether such materials be due to disintegration of the tissues themselves or be educts from an excessive food supply.

The American habit of drinking water has not, however, arisen from the promptings of any blind instinct leading the race to attempt to wash out of the body the products of excessive self-indulgence, or the last taint of a gouty ancestry, but has simply sprung from the climatic condition. The dry air (as compared with Europe) and the high temperature of the summer months make the American throw off water and make the system demand water. The vacuum in the body must be supplied. That the American people do not drink more water than they need is shown by the fact that the American man is a drier individual, not only in his speech but also in his tissues, than is the European. True humor consists of a kernel of truth surrounded by a hull grotesquely unfit for it; and so the humorist habitually expresses a physiological fact when he makes John Bull in the cartoon plump and succulent, and Brother Jonathan hard and dry. Many years ago the writer at a meeting of the physiological sections of an International Congress, said that a certain physiological operation or procedure reported by European physiologists did not produce the results upon dogs which were alleged, unless indeed the European canines were very different from his American brothers, a suggestion which led to a general titter until Brown-Sequard got upon his feet and said that he had studied and practiced vivisection on

the two continents, and that it was a fact that the American people and the American dogs and lower animals were distinctly different in vascularity from their respective kindreds in Europe; that operations in vivisection which in Europe he could scarcely perform on account of the amount of bleeding produced, he had done on the American dog with almost dry tissues.

The American drinks water because he is thirsty; he is thirsty because he sweats; and he wants his water cold because he is hot; the cooling of the system being demanded, but the cool temperature being especially grateful to a heated throat. What is the poor American to do? He is threatened with mummification if he does not drink water; he is appalled by the horrors of gastric catarrh if he does drink water. The answer is obvious; drink water between meals rather than at meals. The drier the meals the less dilute the gastric juice, the better theoretically at least is the digestion. Fortunately the ordinary human being is made with a reserve force, and so if he be in the ordinary condition he need not study the number of drops of water he takes with his meal; but if he have any disease of the stomach or feebleness of digestion it is well worth while to count the drops.

Cold water has so good a taste when a man is very heated that most people will continue to take cold water, and a general chilling of the body would seem sometimes to be of service. Nevertheless, there probably are cases in which the sudden pouring of large masses of cold water upon a stomach in a person who has little reserve power has produced an immediate violent disturbance. These cases are, however, in our opinion, few; indeed, our belief in their existence may be due to the nursery teachings of our early childhood, since if the truth must be spoken, in a medical experience extending over thirty-five years, we have never seen colic, col-

lapse, or any other acute symptom or condition produced by a cold drink. But for fear that the nursery bogie is the shadow of a truth we would advise our readers when hot to drink cold water slowly. We remember once, when two thirds dead of thirst in the Texan desert, with what joy we raised to our lips a quart mug of water and drank it to the bottom without a breath, but in an ordinary emergency a half tumblerful of water, followed in a moment or two (if it must be) by the other half tumblerful of water, should satisfy the ordinary individual.—*American Medico-Surg. Bulletin.*

PHYSICAL EFFECTS OF ATTENDING SCHOOL.

In what way the bodily development of children is affected by their attendance at school has been closely investigated for years by Dr. Schmidt-Monnard, of Leipzig, who recently gave his results in an address to the Lehrer-Verein of that city. His results are as follows:

1. It is a difficult task to trace with accuracy what effect attending school has on the growth of children and on their increase of weight; but it is a fact demonstrated beyond reasonable doubt that children in the first year of school attendance gain less in weight and height than they do in preceding years, namely, only one kilogram (two and one-fifth pounds) in weight compared with four in early years, and five centimeters (two inches) in height compared with seven before; and that the average proportions in this respect are not again attained until in later years; and, further, that children who do not enter school until their seventh year are stronger and better developed physically than those who enter a year earlier.

2. Acute sicknesses are not caused by the fact that children must study, but are

produced by defective hygienic school-rooms. Lack of cleanliness, of fresh air and light, decrease the ability of children to resist the attacks of contagious diseases. This, too, becomes better in later years.

3. Chronic troubles, such as weakness, headaches, insomnia, and nervous disorders in general, are found to a much greater degree in schools of higher grade than in the elementary. They increase steadily in the case of girls to the age of puberty, frequently troubling as many as fifty per cent., while in the case of boys the highest percentage is thirty-five per cent. After that age, in consequence of the increase of weight, they decrease to twenty-seven per cent. in the case of girls. Eight per cent. of children about this age suffer from insomnia caused chiefly by social excitement at home. In the higher grade of schools for boys, especially when there are no afternoon recitations and the pupils are compelled to take exercise, the percentage of sickness varies from twenty to thirty-nine; while in the case of those schools where there are afternoon recitations and no enforced exercise, the percentage runs up as high as seventy-nine. Eighteen per cent. of boys in such schools complained of insomnia.

4. The cause of these troubles is to be found largely in the extra work assigned to children at home, such as drawing, lessons, music lessons, and the like, as also to the fact that in schools physical exercise is not made compulsory, as it should be.

The speaker closed his address with these words: "The children are not too weak for our schools, and for that reason should not cease to attend; but, rather, our schools make too heavy demands on the children, and for that reason these demands should be made lighter."—*The Literary Digest*.

BRAIN FATIGUE IN SCHOOL WORK.

A question of interest to teachers is raised by a recent paper by Dr. Kemsies, the headmaster of a large German school, who gives his personal experience of the conditions which influence the working capacity of his pupils. We quote from an abstract of his article in *The Hospital*: "The best work, he says, is done at the beginning of the week, after the Sunday holiday; and by Tuesday afternoon it has already begun to deteriorate. Again, the mornings produce the best work, and the midday rest, during which the midday meal is taken, does not produce the same recuperation as the night's rest. If these results are to be taken as correct, it would seem as if many of our educational customs might be reformed with considerable advantage. We have long thought that a reversion to the two half-holidays would be a great advantage to the children, however much the teachers might dislike it, and these investigations only tend to confirm our idea. Young ladies, again, used to go to school in the morning and the afternoon, with a two hours' interval between the two sessions. But now it is thought desirable, we suppose, that they should be free to pay calls with their mothers in the afternoons, and everything is crowded into one long grind of four hours in the morning. Moreover, a modern blackboard lesson is a very different thing from the work that used to be done in school hours, much of which would now be called preparation; and, although as a means of teaching facts its value is obvious, so also is its power of producing fatigue. Curiously enough, the German experience is that gymnastics, which we are apt to class with play, produce the greatest fatigue of all, rendering the work done after it practically useless. But, then, the gymnastics are probably done in a class, each pupil hav-

ing to do as he is told. This is practically another lesson, and is not to be put into the same category with half an hour in a fives-court, or at football. It must not be forgotten that the effort to make teaching interesting, which is its great characteristic in modern times, does not really lighten the burden on the child. It makes learning easier, but it makes him learn more; it keeps him always at it, and it steals from him those moments of torpor and stupidity, of dreams and vacancy, in which his little brain used to take furtive snatches of repose."—*The Literary Digest*.

OTTOMAN STATISTICS.

The Bureau of Statistics of Paris induced the French Government to exchange statistical matters with the Turkish Government. Both governments consented, and the French Bureau of Statistics has sent blanks to be filled out and they have been handed by the French Ambassador to the Turkish authorities. The Parisian Bureau has sent six blanks. The questions to be answered have been the following:

1. What is the rate of deaths of the city?
2. What is the rate of births?
3. What is the supply of drinking water?
4. How much goods are imported?
5. How much goods are exported?
6. General remarks pertaining to the welfare and health of the people.

One blank came back filled out by the Chief Magistrate of the city of Damascus. The blank has been filled out thus:

Answer to 1. In Damascus everybody must die on the command of Allah. Some die young, some die old, but everyone must die.

2. I cannot answer answer this question. Allah alone knows that.

3. Since time immemorial nobody died

of want of water in the city of Damascus.

4 and 5. I never cared of my neighbor's business, and I cannot say how many camel loads are brought to or sent from Damascus.

6. Since Allah has sent his prophet, Mohammed, into the world, who has cleansed the world with fire and sword, things are little better, but there is much to be done yet, and much room for improvement.

And now my sweet lamb, do not ask any more questions, which are neither good for you or anybody else. This is the first and last blank I filled out for you.

SALAM ALEIKUM.

—*Public Health Journal*.

REVIEW OF DISEASES FOR MARCH, 1898.

(SEVENTY-EIGHT COUNTIES REPORTING.)

Eighty-one counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

MEASLES.—Alexander, 2; Beaufort, 150; Caldwell, 20; Catawba, abundant; Chatlham, 20; Chowan, 25; Davie, many; Franklin; Iredell, a few; Jackson, 2; Johnston; Mecklenburg; Northampton, numerous; Person, 1; Pitt, many; Rockingham, in all parts; Rowan, 3; Stokes, 25, in all parts; Surry, a few, epidemic abating; Transylvania; Wake, 6; Warren; Watanga, 10; Wayne, 1; Wilkes, 43; Wilson, 100; Yadkin, 12. 27 counties.

MUMPS.—Clay; Macon; Sampson; Wayne.

WHOOPING-COUGH.—Chatham, 6; Davidson, in all parts; Granville; Greene, 10; Jackson, 6; Martin, 10; Montgomery, 30; Onslow, 5; Robeson, in all parts; Rockingham, in all parts; Rowan, 2; Wake, 1; Warren; Washington, 25, in all parts; Wilkes, 35; Yadkin. 16 counties.

SCARLATINA.—Buncombe, quarantined, recovered; Cumberland, 1; Halifax, 1; Moore, 1; Northampton, 4.

DIPHTHERIA.—Jackson, 2; Wake, 1; Watauga, 5; Wilkes, 5.

TYPHOID FEVER.—Beaufort, 2; Craven; Jackson, 4; Johnston, 2; Mitchell, 4; New Hanover, 2; Pitt; Rowan, 1; Sampson, 2; Surry, 1; Swain, 2; Yancey, a few. 12 counties.

MALARIAL FEVER.—Chatham, 1; Chowan; Columbus; Gaston, 1; New Hanover, in all parts; Onslow; Person; Rowan, Sampson; Wilkes. 10 counties.

MALARIAL FEVER, PERNICIOUS.—Wilkes.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 1; New Hanover, 1; Onslow, 1.

SMALLPOX.—Clay, 1; Rowan, 1.

DIARRHOEAL DISEASES.—Mitchell, Onslow.

INFLUENZA.—Alamance; Caldwell, in all parts; Cleveland; Craven; Greene; Henderson; New Hanover; Union; Vance; Yancey. 10 counties.

PLEURISY.—Martin.

PNEUMONIA.—Alamance; Catawba; Cleveland; Craven; Gaston; Iredell; Lincoln; Martin; Onslow; Pasquotank; Rockingham; Transylvania; Union; Vance; Washington; Watauga; Yadkin. 17 counties.

RHEUMATISM.—Lincoln.

ROTHELN.—Sampson.

DISTEMPER, IN HORSES.—Clay, Jackson; Moore.

No diseases of importance are reported from, Ashe, Bertie, Bladen, Burke, Cabarrus, Carteret, Duplin, Durham, Edgecombe, Forsyth, Guilford, Haywood, McDowell, Madison, Mecklenburg, Orange, Pender, Polk, Randolph, Richmond and Rutherford.

No reports have been received from Anson, Hertford and Perquimans.

Summary of Mortuary Reports for March, 1898 (Twenty-two Towns).

Only those towns from which certified reports are received are included:

	<i>White, Col'd. Total.</i>		
Aggregate population	66,639	53,321	119,960
Aggregate deaths.	61	73	134
Representing temporary annual death rate per 1,000	11.0	16.4	13.4
<i>Causes of Death.</i>			
Typhoid fever	3	1	4
Malarial Fever	1	0	1
Pneumonia	7	10	17
Consumption	10	19	29
Brain diseases.	3	1	4
Heart diseases	8	5	13
Neurotic diseases	2	0	2
Diarrhoeal diseases	1	2	3
All other diseases	23	33	56
Accident	3	2	5
	61	73	134
Deaths under five years	10	21	31
Still-born..	3	9	12

Mortuary Report for March, 1898.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH- RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		Still-born.
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	Deaths Under 5 Years.
ASHEVILLE	W.	8,000	13,000	9.0	11.1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	6	12	...	...
Dr. M. H. Fletcher.	C.	5,000	...	14.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Durham	W.	4,000	6,000	...	...	...	...	...	...	...	...	...	1	1	...	...	3	...	...	...	5	5	1	...
Dr. J. M. Manning.	C.	2,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
FAYETTEVILLE	W.	3,500	6,000	6.8	6.0	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	12	3	...	1
Dr. J. V. McGougan.	C.	2,500	...	4.8	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	3	...	1
GOLDSBORO	W.	3,700	5,700	6.5	10.5	...	...	...	...	...	...	...	...	1	...	...	1	2	...	...	32	5	1	2
T. H. Bain, Sec. B. H.	C.	2,000	...	18.0	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1	3
HENDERSON	W.	2,250	4,250	5.3	11.3	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	3	...	...
Dr. F. R. Harris.	C.	2,000	...	18.0	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...
HILLSBORO	W.	700	1,000	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. C. D. Jones.	C.	300	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LENOIR	W.	900	1,200	13.3	10.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...
Dr. A. A. Kent.	C.	300	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MARION	W.	750	1,000	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. B. A. Cheek.	C.	250	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MONROE	W.	1,800	2,400	6.7	10.0	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...
Dr. J. M. Blair.	C.	600	...	20.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
OXFORD	W.	1,200	2,300	20.0	15.6	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	3	1	...
Dr. G. A. Coggeshall.	C.	1,100	...	10.9	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
RALEIGH	W.	8,500	16,000	7.0	8.2	...	1	...	...	...	...	...	2	1	1	...	...	...	...	...	5	11	...	...
T. P. Sale, Clerk B. H.	C.	7,500	...	9.6	...	...	...	...	...	...	...	1	1	...	...	...	3	...	...	...	6	12	...	...
ROCKINGHAM	W.	1,300	1,750	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. W. M. Fowlkes.	C.	450	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ROCKY MOUNT	W.	1,600	2,600	7.5	4.6	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	...	...
Dr. G. L. Wimberley.	C.	1,000	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
SALEM	W.	4,100	4,550	5.9	5.3	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	2	...	...
S. C. Butner, Mayor.	C.	450	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	2
SALISBURY	W.	4,000	6,000	6.0	12.0	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	2	6	1	...
Dr. John Whitehead.	C.	2,000	...	24.0	...	...	...	...	...	...	...	1	2	...	...	...	1	...	...	...	4	...	...	...
SCOTLAND NECK	W.	775	1,200	15.5	10.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	...	...
J. A. Perry, Mayor.	C.	425	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TARBORO	W.	1,200	2,500	50.0	33.6	1	...	...	...	...	...	1	1	...	...	...	3	...	...	...	5	7	...	...
Dr. L. L. Staton.	C.	1,300	...	18.5	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	...	...
WARRENTON	W.	961	1,760	13.9	6.8	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	...
Dr. P. J. Macon.	C.	796	...	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	1
WASHINGTON	W.	3,000	5,500	32.0	28.4	...	...	...	...	...	...	1	1	...	1	1	3	1	...	...	8	13	3	...
Dr. D. T. Tayloe.	C.	2,500	...	24.0	...	...	...	...	...	...	...	1	1	...	...	3	...	...	...	...	5	...	...	...
WELDON	W.	700	1,450	0.0	8.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
J. T. Gooch, Mayor.	C.	750	...	16.0	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
WILMINGTON	W.	10,000	25,000	15.6	17.8	...	...	...	...	...	...	2	1	...	2	...	8	...	...	...	13	38	1	...
Dr. W. D. McMillan.	C.	15,000	...	2.0	...	...	...	...	...	...	...	2	9	...	...	1	13	...	...	...	25	...	9	...
WILSON	W.	2,500	4,800	14.4	12.5	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	3	5	...	...
Dr. N. Anderson.	C.	2,300	...	10.1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
WINSTON	W.	5,200	10,000	9.2	21.6	1	...	...	...	...	...	3	...	...	...	...	...	...	...	...	4	18	4	2
Dr. John Bynum.	C.	4,800	...	35.0	...	...	...	...	...	...	...	3	3	...	2	...	5	1	...	...	14	...	...	...

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, there were 9 deaths of visitors: 1 of pneumonia and 8 of consumption.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	No Board of Health.
Alleghany		Lenoir	Dr. James M. Parrott.
Anson	Dr. E. S. Ashe.	Lincoln	Dr. W. L. Crouse.
Ashe	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick		Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. J. J. Mann.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell		Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Hieghway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moye.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGongan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	No Board of Health.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. A. G. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watanga	Dr. W. B. Council.
Henderson	Dr. J. G. Waldrop.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough _____	Typhoid Fever _____
Measles _____	Typhus Fever _____
Diphtheria _____	Yellow Fever _____
Scarlet Fever _____	Cholera _____
Pernicious Malarial Fever _____	Small-pox _____
Hemorrhagic Malarial Fever _____	Cerebro-spinal Meningitis _____

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks :

M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington.	C. J. O'HAGAN, M. D., .....Greenville.
S. WESTRAY BATTLE, M. D., .....Asheville	J. D. SPICER, M. D., .....Goldsboro.
W. H. HARRELL, M. D., .....Williamston.	J. L. NICHOLSON, M. D., .....Richlands.
JOHN WHITEHEAD, M. D., .....Salisbury.	A. W. SHAFFER, SAN. ENG., .....Raleigh.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XII.

MAY, 1898.

NO. 13.

ANNUAL MEETING OF THE BOARD.

As required by law, the annual meeting of the Board was held at the same time and place as the State Medical Society, viz., Charlotte, May 3-4. Drs. O'Hagan, Battle, Nicholson, Colonel Shaffer and the Secretary were present. At the business meeting, on the 3rd, in the unavoidable absence of President Thomas, Dr. O'Hagan was elected President *pro tem*. In addition to the routine business, the report of the Engineer of the Board on the public water supplies of the State was read and discussed at considerable length. Upon the conclusion of the discussion the Secretary was ordered to devote one issue of THE BULLETIN to its publication, together with the chemical and bacteriological analyses of the samples sent in by him. It will appear next month.

An inspection of all the public institutions of the State, by committees to be appointed by the President, was ordered.

On Wednesday, as has been the custom for many years, the Board met in conjoint session with the State Medical Society, Dr. Battle in the chair.

The Secretary read his annual report.

The subject receiving the most attention in the discussions was vaccination, quite a number participating. In the course of it, Dr. Francis Duffy, President of the Society, described a device for dressing vaccinated arms, which struck us as being very practical and convenient—so much so that we feel it to be our duty to describe it for the benefit of our medical readers, as we hope they have much good vaccination work ahead of them. The device may be briefly described as follows: A piece of rubber adhesive plaster three or four inches wide and long enough to go about two-thirds around the vaccinated arm, with tapes attached to each end. The plaster is applied to the arm with its centre opposite the sore, the tapes hanging loose. At each end of the plaster a roll of absorbent cotton is laid on the skin in the line of the arm just at the attachment of the tapes, so as to lift them above the skin. The dressing is then applied, and the tapes tied over it to hold it in place. In each subsequent dressing the only thing to do is to untie the tapes, renew the dressing and re-tie them. Dr. Duffy stated that he had found it much more

satisfactory than the usual vaccination shields, and we could well believe him.

In connection with the subject of National Quarantine, the following resolution was unanimously adopted:

Resolved, That the North Carolina Board of Health and the Medical Society of the State of North Carolina, in joint session assembled, endorse the Caffery bill enlarging the powers of the U. S. Marine Hospital Service, and respectfully request our Senators and Representatives in Congress to support the same.

SMALL-POX IN NORTH CAROLINA.

Only one case has been reported in May up to date of this writing, 18th. This is a negro "missionary preacher" at Statesville. The notification, by telegraph, was received on the 17th, and no particulars as to isolation, vaccination, etc., have come to hand, but we feel assured that Superintendent Long will carefully look after these.

PRESIDENT DUFFY ON PUBLIC HYGIENE.

We take much pleasure in presenting to our readers that portion of the admirable presidential address of Dr. Francis Duffy, delivered at the recent meeting of the State Medical Society at Charlotte, relating to the public health. He says:

* * * * *

It may be like the re-threshing of old straw to refer to the importance of public hygiene, and the necessity of procuring legislation for the promotion of that object, but as that sort of straw has yielded so comparatively little of the grain which it is capable of producing, I am impressed that we should continue to thresh. As far as we are concerned, I do not feel that it is necessary to remind this body of these things, much less to offer instructions, but with the people in general, as well as their legal representatives, it is different. They have not yet found out the best way to spend their money with the medical profession to get the best returns. With them the time-honored function of the doctor is to ap-

ply remedies to diseases, and according to the law of supply and demand, the physician usually equips himself for the performance of that function, and by solicitation and practice grows in that direction. It is not my purpose to derogate this part of the physician's work. The world would be much poorer without the legitimate use of opium, chloroform, cocain quinine, iodine, mercury and other remedies. If the evil is upon us, that which removes or mitigates it will continue to be appreciated and sought, but where cure can save its thousands, prevention can save its tens of thousands, and it is a crying necessity to-day that this fact receive both a theoretical and practical realization by the whole people.

Before we can hope to leaven the whole lump of the b-d-y politic, let the physician scrutinize himself and the field that he occupies, to see how far he is the exponent of the true science, or to what extent he typifies or justifies a recent cartoon that represents nature and disease in fierce combat, while the doctor comes up blind-folded, and with his cudgel strikes right and left, now striking the disease and now the patient.

The history of the application of therapeutic measures (drugs mainly) does much to justify this cartoon. It is not necessary to more than refer to the incantations and other absurdities of ignorance and superstition which were in keeping with the dark ages in which they were practiced. Within the memory of men of to-day, famishing fever patients have been deprived of water by their misguided attendants, who were governed by tradition and custom, rather than by the dictates of common sense and the unerring cravings of nature. Even the foul air of the patient's room was carefully confined by closing the doors and windows, and perhaps his strength still more reduced by copious blood-letting.

My mother related to me an experience in her early life. Her father, living on his plantation, was stricken with fever, and after some days or weeks of bleeding and famishing he died. A number of his negro slaves were also stricken and under the same management went the same way. One servant begged to be let alone and not subjected to the treatment. His wishes were gratified and he alone recovered. I remember the old man well. He lived to advanced age.

Homeopathy and a number of other pathies, in spite of their absurdities, had fruitful soil in which to grow. They were less aggressive on the persons of the suffering sick, and if they gave no aid, were not so likely to hinder natural recoveries, and so the regular profession looked on, learning from experience, grew in knowledge, by its natural evolution, and became wiser than their critics. But the medical millenium has not yet come, nor are the days of mal-practice past. Even among operative procedures, the fads of gynecologists and the exploits of those seeking fame by startling measures in other fields require constantly to be challenged, to show cause why they should not be discontinued. If the novice takes up an optimistic modern work on materia medica, and studies the physiological effect of drugs and their therapeutic application, he might easily be impressed with the belief that drugs could control every pathological process, and remove every morbid condition. Coupled with these studies, he is very much surprised to find that works on practice of medicine (perhaps especially those of the scientific Germans) will give exhaustive descriptions of disease, pathology, etiology, clinical history, diagnosis and prognosis, but beyond general reference to hygiene, nothing specific as to the treatment. The fact of the limited power of drugs to work beneficial changes begins to dawn upon him, and that even those that are of undoubted value are like edged tools, and require careful handling. Even our comparatively harmless quinine, which so effectively destroys the malarial plasmodium, has been made to do its share of harm. On no less authority than the German professor, Leibermeister, 40 grains at a dose have been given to typhoid patients. Within recent years the coal tar antipyretics were hailed with delight. Fever killers had come at last! A Baltimore professor told his class that antipyrine was what he had been praying for. I think you will agree with me that more patients than fevers have been killed by them; and these remedies are in rather common use among the laity.

Not many days ago I visited a child to whom the mother had administered a dose of acetanilid before the cold stage of an intermittent fever had disappeared. Alarming symptoms followed. Another

case came under my notice, where a farmer had administered a dose of acetanilid under similar circumstances. The child died, apparently from its effects.

Not many years ago, the doctrine was promulgated that disease, a condition of lowered vitality, required to be combated by copious administration of alcoholics. This fascinating theory had many adherents and did much harm. In the field of dietetics, we went from starvation to stuffing. Even to-day an American text-book advises that a typhoid fever patient may take as much as six quarts of milk a day, a quantity that has been shown by physiological experiment to be one-third more than the full digestive capacity of a healthy man, eating nothing else and digesting all the day. We have no infallible guides. Our reason must challenge every theory, and our experience prove all things, and hold fast to that which is good.

But why this arraignment of a profession, which in the matter of education, conscientiousness and faithfulness compares favorably with any on earth. It is to lament that our most uncertain and dangerous functions are most in demand; that millions of dollars are paid by the people for the practice of medicine as it is being done, and as to some little extent has been indicated in the foregoing pages, while our best functions or capabilities are dwarfed by disuse and neglect. The public health officer would have to be a missionary at his own expense, while a premium is put on disease. This is not a mere perverse and unnatural choice of the people. They are as wise as we are, and will seek their own good as they conceive it to be. We are of them, and differ only as regards these matters in knowledge.

If they, the masses of the people, knew as much of the sources of the disease as the educated better element of physicians, who do you suppose would be in the van of the procession to stamp it out? The man who reaps a harvest when disease runs riot, or the man who pays the bills? That the people should become possessed of this knowledge is the prime requisite, for should we obtain such legislation as in our judgment was all that was necessary and such appropriations as would leave our Board of Health unhampered in discharge of their functions, the laws would be largely inoperative if lacking in popular

sympathy and support; besides, many of these things would depend on habits of individuals, which legislation could not control. It is to be, then, chiefly a matter of education; and how to accomplish this, is the problem.

If the individual physician in his professional and social contact with his clients sows the seed, if our Boards of Health, local and State, continue and even improve upon their good work, and if our schools, from the lowest to the highest, teach the rudiments of the science of health, and unfold to the mind of the pupil the necessity of expert work in the prevention of disease, knowledge must grow. And if our State Society, in its organized capacity, with the courage of its convictions, does not hesitate to urge necessary legislation, they will have discharged their duty, and may soon accomplish much.

Typhoid fever, which is perhaps entirely ventable, causes the State the loss of many a victim and much treasure. Current knowledge or opinion ascribes its propagation almost entirely to intestinal discharges of the infected. Prevention would seem to be in easy reach, yet it goes on. Personal observation leads me to believe that disinfection of the dejections is not accomplished in one half the cases. Many cases of continued fever are not considered typhoid fever which are most likely of that nature. I will not discuss the subject, but pass it by with the recommendation that the dejections of all fever patients be disinfected. The public should be instructed to do so, even where physicians are not employed, as they often are not, and it may be a fit subject for compulsory legislation. Our Board of Health has done a good service in the matter of prevention of malarial fevers by use of deep well and cistern water. But a properly managed cistern is an exception. Infectious germs are carried from the atmosphere or house-tops to the cistern. Filters, often imperfect, remain unchanged until oversaturated. They become thus the source of infection. Tuberculosis continues to be propagated by the expectoration of the infected without hindrance, except perhaps in one municipality in the State. Milk is sold from any kind of cow which will afford it. Diseased meats are sold in the markets. Ice is imported from impure sources and people believe that

freezing purifies it, which is true only to a limited extent, and may be manufactured from impure water. Any kind of canned food is sold that any one will buy. There is no check on adulteration or fraud as to what the people eat or drink or take as medicines, patent or proprietary, save their own unskilled judgment, warped or blinded by alluring advertisements and unblushing false assertions.

The physician often finds that a patient unable to pay him has raked up money enough to pay an exorbitant price for worthless medicines or appliances. Druggists practise medicine. Spectacle vendors, ignorant or unscrupulous, still practice this branch of the medical art, though a medical college graduate has first to pass our State Board. Dangerous drug habits or other evil consequences arise from headache cures and the like. Beverages (coca cola for instance) sold from the soda fountains should be subject to analysis and the people advised, or the sale interdicted if necessary. I refrain from further specific references.

The doctor of the future will probably differ more widely from the one of to-day than the doctor of to-day differs from the one of the past. We know something of him of the past and the present, and that the tares have been mixed with the wheat in varying proportions. With prophetic eye we may contemplate him of the future, but we know not how far distant, or how near at hand. The poet or philosopher may by inspiration point the way, the scientist by experimental research may demonstrate, still events occur only in the fulness of time or that period in the evolution of the human race under the sovereignty of God when it is possible to achieve that which before was not attainable, but the sword of the doctor (his weapons of warfare on disease or the diseased) will be changed to the pruning-hook, which cuts away the poisonous branches upon which grow the deadly fruit.

In the propagation of the race, in the construction of human habitations, in clothing and in food, in labor and in recreation there is a rational wisdom, and in connection with these there should be skilled advisers. If physis should be thrown to the dogs, will the doctor's occupation be gone? Not when he has proper surveillance over everything that

affects the health of the people. In his present status of equipment he could do much more than he does or is permitted to do, but when the new order of things creates the demand, medical colleges will not condone ignorance of chemistry and physics, even as now imperfectly taught, nor make side-shows of the microscope and laboratory. These stones, which are well nigh rejected by the builders of medical education, will become the heads of the corner. These things will be *sine qua non*.

North Carolina has been called the Rip Van Winkle of States; still she has been known to arouse from her lethargy. In the matter of legislation regulating the practice of medicine, she was (through the influence of our Society) in the van of the procession. And in this historic city (Mecklenburg County), May 20th, 1775, she sounded the bugle call as a pioneer of liberty. It is fitting that we should here resolve to push still further the lines of human progress.

REVIEW OF DISEASES FOR APRIL, 1898.

(SEVENTY-SEVEN COUNTIES REPORTING.)

Eighty-one counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

Measles—Alamance; Alexander, 1; Beaufort, in all parts (100); Bertie; Buncombe, 1; Catawba, many; Chowan, epidemic; Franklin, many; Haywood, 5; Johnston; Lincoln, 3; Martin, 2; Montgomery, 10; Pitt, widely prevalent in

southern part; Randolph, 10; Robeson; Rockingham, in all parts; Stokes, in all parts; Wake, 10; Warren, several; Washington, 2; Wilkes, 25; Wilson, 5; Yadkin, 2; Yancey, a few—25 counties.

Mumps—Alamance; Jackson; Macon; Mecklenburg; Union.

Whooping-cough—Chowan, epidemic; Durham, 1; Granville; Greene, 50; Jackson, 10; Mitchell, 40; Montgomery, 50; New Hanover, 1; Onslow, 10; Randolph, 20; Robeson; Warren, several; Washington, 70; Wayne, epidemic; Wilkes, 15; Yadkin, 12—16 counties.

Scarlatina—Buncombe, 1; mild, quarantined, recovered; Cumberland, 5; Richmond, 3.

Diphtheria—Jackson, 8.

Typhoid Fever—Alexander, 1; Beaufort, 3; Catawba, 2; Davidson, 1; Pitt, Randolph; Robeson; Rowan; Sampson, a few; Swain, 3; Union, 12—11 counties.

Malarial Fever—Columbus; Gaston, 2; Sampson; Wilson.

Small-pox—Buncombe, 2.

Influenza—Mecklenburg; Transylvania.

Pneumonia—Mecklenburg; Orange; Perquimans; Rutherford; Transylvania; Warren, Yadkin—7 counties.

Diarrhœal Diseases—Cleveland; Gaston; Hertford; Nash; Rutherford; Sampson.

Varicella—Greene; Mecklenburg and Wake.

Distemper in Horses—Lincoln.

Cholera in Hogs—Hertford; Macon.

No diseases of importance are reported from Bladen, Burke, Cabarrus, Caldwell, Cartaret, Chatham, Cherokee, Clay, Edgecombe, Forsyth, Gates, Halifax, Henderson, Iredell, McDowell, Madison, New Hanover, Pasquotank, Pender, Perason, Polk, Surry and Watauga.

No reports have been received from Anson, Craven, Duplin and Vance.

**Summary of Mortuary Reports for April.
1898 (Twenty-three Towns).**

Only those towns from which certified reports are received are included:

	<i>White. Col'd. Total.</i>		
Aggregate popula- tion	72,439	55,821	128,260
Aggregate deaths..	48	81	129
Representing tem- porary annual death rate per 1,000	7.9	15.6	12.1
<i>Causes of Death.</i>			
Typhoid fever. . . .	2	0	2
Malarial Fever . . .	1	1	2
Whooping-cough . .	0	2	2
Measles	0	1	1
Pneumonia	6	5	11
Consumption	9	19	28
Brain diseases . . .	7	2	9
Heart diseases . . .	2	5	7
Diarrhoeal diseases .	6	0	6
All other diseases . .	15	42	57
Accident	0	4	4
	<hr/> 48	<hr/> 81	<hr/> 129
Deaths under five years	15	24	39
Still-born.	1	19	20

Mortuary Report for April, 1898.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPO- RARY ANNUAL DEATH- RATE PER 1,000.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.				
		By Races.	Total.																		By Races.	Total.	By Towns.	Deaths Under 5 Years.	Still-born.
ASHEVILLE	W.	8,000		4.5								1										1	13 ³	2	1
Dr. M. H. Fletcher.	C.	5,000	13,000	24.0	12.0							3	3	1				4				1	6	1	
DURHAM	W.	4,000	6,000	12.0	12.0						1	2					1					4	6	1	
Dr. J. M. Manning.	C.	2,000		12.0					1								1					2	9	1	
FAYETTEVILLE	W.	3,500	6,000	3.4	18.0											1						7	1		
Dr. J. V. McGougan.	C.	2,500		38.4			1					3	1				2	1				2	2		
GREENSBORO	W.	5,500	8,000	1.1	9.0							1										2	6	1	5
J. S. Michaux, City Clk.	C.	2,500		19.2								1					3					1	1		
HENDERSON	W.	2,250	4,250	5.3	2.8								1									1	1		1
Dr. F. R. Harris.	C.	2,000		0.0																		0	1		
HILLSBORO	W.	700	1,000	0.0	0.0																	0	0		
Dr. C. D. Jones.	C.	300		0.0																		0	0		
LENOIR	W.	900	1,200	0.0	0.0																	0	0		
Dr. A. A. Kent.	C.	300		0.0																		0	0		
MARION	W.	750	1,000	0.0	0.0																	0	0		
Dr. B. A. Cheek.	C.	250		0.0																		0	0		
MONROE	W.	1,800	2,400	13.3	15.0		1					1										2	3		
Dr. J. M. Blair.	C.	600		20.0													1					1	...		
OXFORD	W.	1,200	2,300	0.0	5.2																	0	1	1	
Dr. G. A. Coggeshall.	C.	1,100		10.9														1				1	...		
RALEIGH	W.	8,500	16,000	14.0	15.0					1		1	3			3	3					10	20	5	1
T. P. Sale, Clerk B. H.	C.	7,500		16.0					1			4	1				1					16	7	2	
ROCKINGHAM	W.	1,300	1,750	18.5	20.6						1		1									2	3		
Dr. W. M. Fowlkes.	C.	450		26.7							1											1	...		
ROCKY MOUNT	W.	1,600	2,600	0.0	0.0																	0	0		
Dr. G. L. Wimberley.	C.	1,000		0.0																		0	0		
SALEM	W.	4,100	4,550	5.8	7.9						1						1					2	3	1	
S. C. Butler, Mayor.	C.	450		26.7													1					1	...		
SALISBURY	W.	4,000	6,000	9.0	16.0	1											2					3	8		
Dr. John Whitehead.	C.	2,000		30.0								1	1				3					5	...	2	
SCOTLAND NECK	W.	775	1,200	0.0	10.0																	0	1		
J. A. Perry, Mayor.	C.	425		28.2													1					1	...		
TARBORO	W.	1,200	2,500	10.0	4.8							1										1	1		
Dr. L. L. Staton.	C.	1,300		0.0																		0	...		
WARRENTON	W.	964	1,790	24.9	13.6									1			1					2	2		
Dr. P. J. Macon.	C.	796		0.0																		0	...		
WASHINGTON	W.	3,000	5,500	12.0	13.1											2	1					3	6	3	
Dr. D. T. Tayloe.	C.	2,500		14.1							1						2					3	...		
WELDON	W.	700	1,150	0.0	8.3																	0	1		
J. T. Gooch, Mayor.	C.	750		16.0																		3	...		
WILMINGTON	W.	10,000	25,000	3.6	11.0							1		2	1		15	1				19	23	6	6
Dr. W. D. McMillan.	C.	15,000		15.2																		...	...
WILSON	W.	2,500	4,800	24.0	17.5	1						2	2									5	7		
Dr. A. Anderson.	C.	2,300		10.1						1		1										2	...		
WINSTON	W.	5,200	10,000	9.2	18.0							1	1				1					4	15	3	4
Dr. John Bynum.	C.	4,800		27.5							2	1					4	1				11	...	2	4

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, there were 6 deaths from consumption, white, and 2 from Bright's disease, white, all, non-residents.

County Superintendents of Health.

Alamance	Dr. J. K. Stockard.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	Dr. S. E. Koonce.
Alleghany		Lenoir	
Anson	Dr. E. S. Aslie.	Lincoln	Dr. W. L. Crouse.
Aslie	Dr. L. C. Gentry.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. D. T. Tayloe.	Macon	Dr. S. H. Lyle.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. B. McNeill.	Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	Dr. A. F. Thompson.
Cabarrus	Dr. J. S. Lafferty.	Moore	Dr. H. B. Shields.
Caldwell	Dr. A. A. Kent.	Nash	Dr. H. Brantley.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clarke.	Northampton	Dr. H. W. Lewis.
Caswell		Onslow	Dr. E. L. Cox.
Catawba	Dr. F. L. Herman.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Paulico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	Dr. R. H. Winborne.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moye.
Craven	Dr. L. Duffy.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	No Board of Health.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. John Whitehead.
Duplin	Dr. F. H. Arthur.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	Dr. R. C. Smith.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. G. A. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. John R. Moss.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. P. J. Macon.
Harnett	No Board of Health.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Conncill.
Henderson	Dr. J. G. Waldrop.	Wayne	Dr. P. C. Hutton.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. M. Turner.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. William Self.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your County on or before the third of each month, that he may use it in making his report to the Secretary of the State Board]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough _____	Typhoid Fever _____
Measles _____	Typhus Fever _____
Diphtheria _____	Yellow Fever _____
Scarlet Fever _____	Cholera _____
Pernicious Malarial Fever _____	Small-pox _____
Hemorrhagic Malarial Fever _____	Cerebro-spinal Meningitis _____

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks : _____

M. D.

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N. C.





